

POPULAR SCIENCE

OCTOBER • 35c Monthly

Battle of the NEW SMALL CARS

PAGES 108-121

- News and photos
- Complete specs
- How they compare
- Driver reports
- Engine details

PLUS BIG
CUTAWAY
DRAWINGS



Chevrolet's
Rear-Engine
CORVAIR



Ford's
Front-Engine
FALCON

THE MAILMAN

REMEMBER THE MORNING I FOUND ANDY SHOLL TRYING TO TAKE ON THE WHOLE NEIGHBORHOOD...



ALL RIGHT, BOYS, WHAT'S THE TROUBLE?

THEY CALLED MY POP A "MUSCLE HEAD" JUST 'CAUSE HE NEVER FINISHED SCHOOL

ANDY! YOU'VE BEEN FIGHTING AGAIN! OH, IF ONLY WE COULD LEAVE THIS NEIGHBORHOOD

MAYBE THIS WILL HELP... IT'S FROM INTERNATIONAL CORRESPONDENCE SCHOOLS



SURE ENOUGH, WITHIN A FEW WEEKS I BEGAN TO DELIVER MORE LETTERS AND PACKAGES FROM I.C.S.

WE'RE KEEPING YOU BUSY THESE DAYS. ANDY'S FATHER IS TAKING A CORRESPONDENCE COURSE, YOU KNOW



A SMART MOVE FOR ANY MAN!

IT WASN'T LONG BEFORE I BEGAN TO NOTICE CHANGES IN THE SHOLL'S HOME. LITTLE THINGS. NEW CURTAINS. FLOWER BOXES. FRESH PAINT. AND THEN, ONE MORNING...

LOOK, MR. MCCURDY. HOW DO YOU LIKE OUR NEW CAR?

WOW! THAT'S A BEAUTY!



GOSH, ANDY, WILL YOUR POP TAKE US FOR A RIDE IN IT?

A FEW WEEKS LATER, MRS. SHOLL MET ME AS I CAME UP THE STEPS...

HAS ANDY TOLD YOU THE NEWS? WE'RE MOVING. MR. SHOLL IS BEING TRANSFERRED. HE'S TO BE A SECTION LEADER IN THE NEW MILDALE PLANT. HERE'S OUR NEW ADDRESS



WELL, I'M REAL HAPPY FOR YOU. BUT I'M GOING TO MISS ANDY-AND THAT I.C.S. MAIL



IT WAS YOU AND I.C.S. THAT MADE IT ALL POSSIBLE. WE THANK YOU BOTH!

I'VE SEEN IT HAPPEN OFTEN. I.C.S. NOT ONLY CAN CHANGE PEOPLE'S ADDRESSES, IT CAN CHANGE THEIR WHOLE WAY OF LIVING.

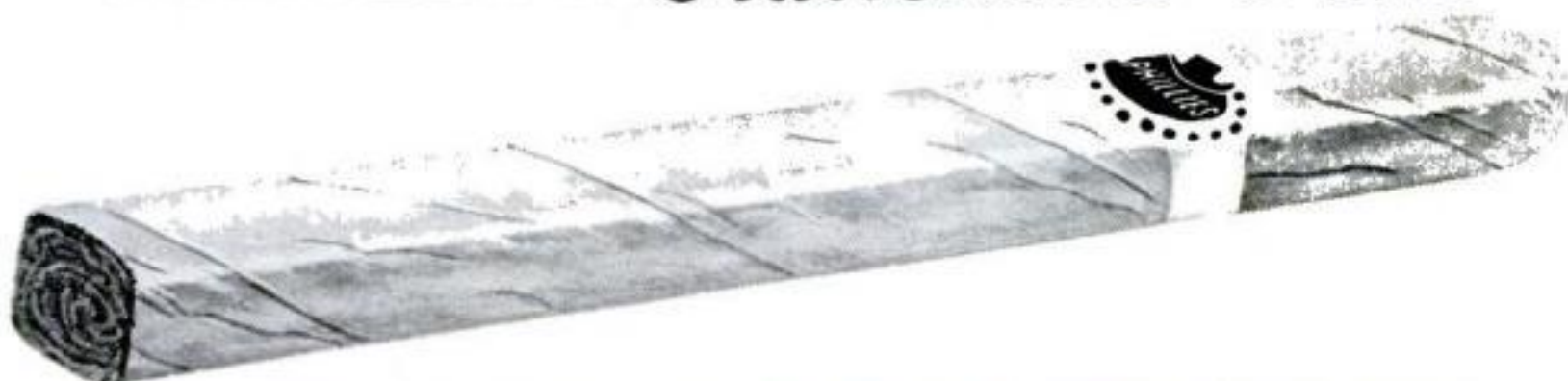
IF YOUR LETTER CARRIER IS LIKE ME, HE'LL BE GLAD TO TAKE A LETTER THAT HAS THE I.C.S. COUPON INSIDE. IT REALLY STARTS THINGS!



ROUNDUP

Hitch up your horse, pick up the boys, and head for the nearest store to git a pack of

PHILLIES CHERROOTS



WHY HERE'S A CIGAR AS FRESH AS A NEW BORN COLT.

A spankin' new size and shape and it's

MIRACLE MILD

*Slick on the draw
and big as your trigger finger!*



Rustle up 28 cents and buy yourself a pack of 5. If you gotta wait in line and your horse starts chompin' at the bit - tell him "whoa" - you ain't getting back in the saddle 'til you get your CHERROOTS!



Jet Flight: London to New York in 6½ hours. P. 92

Sea Monsters: How to go about catching one. P. 100

House Moving: They do it by machine. P. 130

Founded in 1872 Vol. 175 No. 4

Mechanics and Handicraft REG. U. S. PAT. OFF.

Popular Science

October, 1959

21-PAGE SPECIAL AUTO SECTION

Battle of the NEW Small Cars.....108

Full-Color Foldout: Inside the Corvair and Falcon.....109

How They Compare.....113

What They're Like to Drive.....114

What Makes 'Em Go.....116

How They're Built.....118

What's Good, Not So Good.....120

First Details on Valiant.....120

1960 Pontiac: Economy Plus Style 122

Olds Cuts Chrome, Hp., Hump...124

The Chrysler Family for 1960.....126

AUTO UPKEEP

Hints from the Model Garage.....223

Gus Fixes a Race.....226

SPECIAL FEATURES

The Truth About Taking Dope.... 81

This School Is for Burning..... 86

How an Auto Horn Works..... 90

Flying the Atlantic by Jet..... 92

Why I Believe in Sea Monsters....100

Clubhouse for Space-Age Boys.....104

Fast-Draw Fad Booms Handguns 136

New for Car, Shop and Home.....142

So a Light Meter Can't Lie?.....190

PICTURE NEWS

Jet Within a Jet..... 80

Back-Seat Drivers..... 84

Pipe Is Inflatable..... 96

Covered Corridors for Jet Riders 129

Super Rifle Costs \$3,500.....134

Cool Head in Air-Cooled Helmet...145

Fireflies Aid Cancer Research.....149

Editor: HOWARD ALLAWAY

Managing Editor FRANK ROWSOME JR.

Art Director HOWARD C. JENSEN

Assistant Managing Editors

Kendall W. Goodwyn
Robert P. Stevenson

Senior Editors

Devon Francis, Martin Mann
Everett H. Ortnor

Technical Editor

Hubert Luckett

Detroit Editor

Ken Fermoye

West Coast Editor

Wesley S. Griswold

Associate Editors

Erik H. Aretander, Alden P. Armagnac
Henry B. Comstock, Frank Dorr
Sheldon M. Gallager, Ernest E. Hickman
James T. Howard, Herbert O. Johansen
Herbert R. Pfister, Joan Steen
Ruth Westphal

Editorial Assistants

Rosa Lee Beeland (Chief)
Marie A. Brew, Anna Dallas
Bebe Lipson, Roberta Marks
Georgette Sparks

EDITORIAL OFFICES: 355 Lexington Ave., New York 17, N. Y.

Art Editors

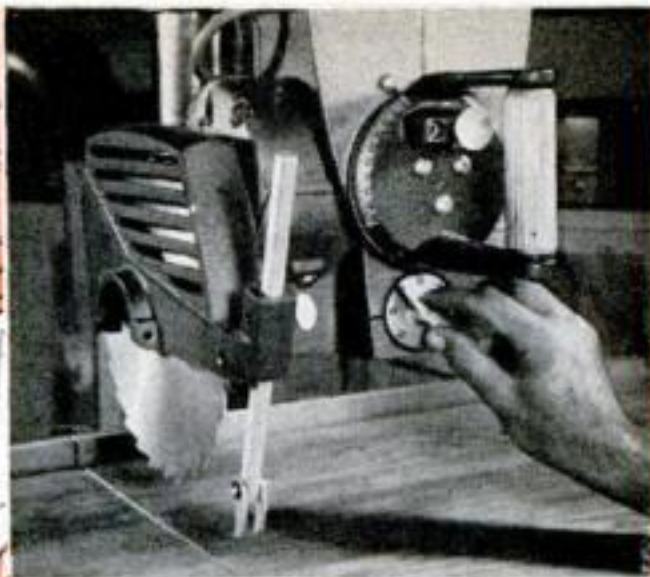
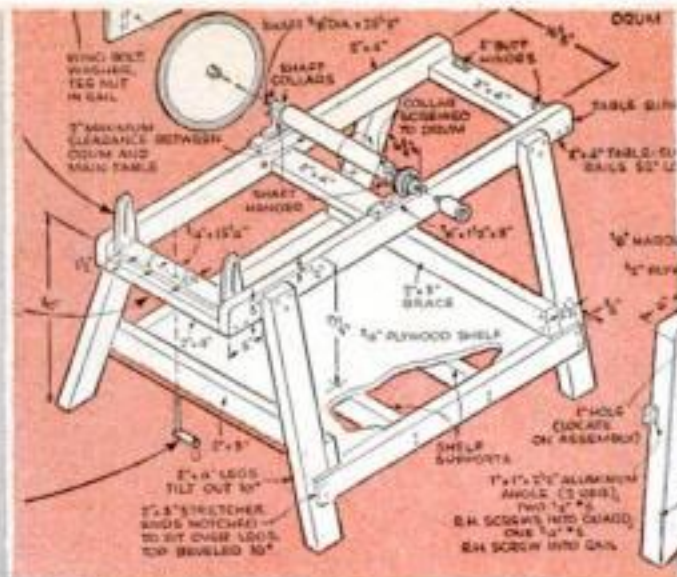
Herbert Anthony, Reginald A. Hawley
Harry Samuels

Art Associates

Bertrum Green, Eric A. Karminski Jr.
Henry W. Kazmirowski, Richard J. Meyer
Dana B. Rasmussen

Photography

W. W. Morris (Chief)
Robert D. Borst, Orlando Guerra



Handguns: *Fast-draw fad booms business.* P. 136

Thickness Sander: *Useful tool at low cost.* P. 164

Saw Smith: *Shop test shows just how good it is.* P. 216

Monthly

America's Leading New-Idea Magazine for 87 Years

FOR HOME AND SHOP

Stereo Speakers in End Tables....	151
Making an Inlaid Chessboard.....	156
When Water Runs Uphill.....	159
Thickness Sander for Home Shops	164
The Handy Art of Riveting.....	170
7 Off-Ceiling Uses for Tile.....	174
Penthouse for City Cats.....	176
11 Special Tools It Pays to Own....	194
Building a Portable Duck Blind....	197
Tips on Painting with a Mitt.....	202
Fix-It File: Sticking Windows.....	207
Materials File: Wood Putty.....	209
Shop Report on New Saw Smith....	216

SCIENCE AND INDUSTRY

Strange Ship Hauls Cooking Gas..	77
The Machine That Moves a House	130
Navy A3J Spits Bomb from Tail....	146

SHORT CUTS AND TIPS

Pusher for Coaster Wagon.....	158
Making Dowels in a Hurry.....	163
Cutting Roll Film in the Dark.....	169
Doors with Glass-Fiber Panels.....	189
Easy-Cleaning Window Wells.....	196
Packaging a Stepladder.....	199
Spacer Strips on Furniture.....	203
Plastic Tubes Hold Small Parts....	204
Diffuser for Overhead Lights.....	213

EVERY MONTH

PS Readers Talk Back.....	6
Have You Heard?.....	18
The Month in Science.....	23
Detroit Report.....	72
New Ideas from the Inventors.....	97
I'd Like to See Them Make.....	144
Wordless Workshop.....	200

Publisher EUGENE S. DUFFIELD

Advertising Manager LEE P. ADAMS

Circulation Director EUGENE WATSON

ADVERTISING OFFICES:

NEW YORK—355 Lexington Ave.
CHICAGO—360 North Michigan Ave.
DETROIT—2810 Book Bldg.
SAN FRANCISCO—114 Sansome St.
CLEVELAND—636 B. F. Keith Bldg.
LOS ANGELES—711 South Vermont.
PORTLAND, ORE.—520 S.W. Sixth Ave.

SUBSCRIPTION SERVICE:

Address all subscriptions and correspondence concerning them to: Popular Science Subscription Department, 355 Lexington Ave., New York 17, N. Y. Allow four

weeks' notice for change of address. Please give both old and new addresses, including zone numbers. Published monthly at 355 Lexington Ave., New York 17, N. Y., by Popular Science Publishing Co., Inc., Godfrey Hammond, Chairman of the Board; Eugene S. Duffield, President; Franklin E. Parker Jr., Secretary; Eugene Watson, Vice-President; Robert D. Beals, Treasurer and Business Manager. Second-class postage paid at New York, N. Y., and at additional mailing offices. Entered as second class matter at the Post Office Department, Canada. Printed in U.S.A.

Copyright, 1959, by Popular Science Publishing Co., Inc. All rights reserved in the United States, Great Britain, and in all the countries participating in the International Copyright Convention and Pan-American Copyright Convention. Single copy 35¢. Subscriptions to United States, its possessions, and Canada, 1 year \$3.40 (2 years \$6.00, 3 years \$8.00). Elsewhere, 1 year \$6.00 (2 years \$11.00, 3 years \$16.00). Send notice of undelivered copies on Form 3579 to Popular Science Monthly, 355 Lexington Avenue, New York 17, N. Y.

TO INTRODUCE YOU TO THE RCA

ANY FIVE

for **\$3.98** **EITHER STEREO**
only **or REGULAR L.P.**

[NATIONALLY ADVERTISED PRICES TOTAL UP TO \$29.90]

... if you agree to buy six albums from the Club during the next year from more than 150 to be made available

THIS EXCITING NEW PLAN offers you the finest stereo or hi-fi music being recorded today for far less money than you would pay otherwise. Now you may join either the Stereophonic Division or the Regular L.P. Division of The RCA Victor Popular Album Club in a short trial membership—and receive five albums of your choice for the single low price of only \$3.98! The plan also helps you build your record library carefully, confidently, completely.

You save up to 40% with this introductory offer alone. Thereafter, if you continue membership, through the Club's Record-Dividend Plan you will **save about one**

third of the manufacturer's nationally advertised prices of RCA Victor regular L.P. and stereo albums. You may choose a **free** twelve-inch 33 $\frac{1}{3}$ R.P.M. regular L.P. or stereo album (depending on which division you enroll in) with every two you buy.

Every month you are offered a wide variety of albums. One will be singled out as the album-of-the-month. If you want it, you do nothing; it will come to you automatically. If you prefer an alternate—or nothing at all—simply state your wishes on a form always provided. For regular L.P. albums you will pay the nationally advertised price—usually \$3.98, at times \$4.98. For stereo albums you will pay the nationally advertised price of \$4.98, at times \$5.98 (plus—in all cases—a small charge for postage and handling).

ALL ALBUMS ARE 12-INCH 33 $\frac{1}{3}$ R. P. M.



13. His latest and most danceable set yet. Ballads, lindys, waltzes, Latin, etc.



14. Fresh versions of 12 harmony hits. *Paper Doll, To Each His Own, Cool Water.*



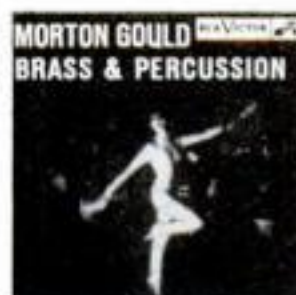
15. Lilted versions of *The Blue Danube, Artists' Life, Emperor Waltz*, 9 others.



16. Key highlights from Tchaikovsky's enchanting masterpiece for ballet.



17. On-the-spot recording. Yes, includes *Day In—Day Out* plus 14 others.



18. 17 swaggering marches: *El Capitan, Semper Fidelis, On the Mall, On Parade.*



25. Absolutely the last word in sound and performance. The greatest *Gaité!*



26. La MacKenzie sings 12 ballads. *Hey There, Ebb Tide, Too Young, Moonglow.*



27. 12 dance-mood favorites by trio plus strings. *I'll Get By, Dream*, etc.



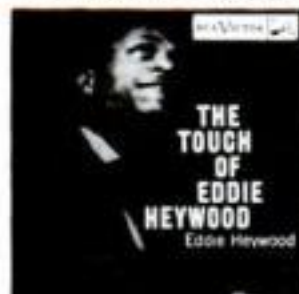
28. Plush, romantic mood setter for a bachelor apartment. 12 top standards.



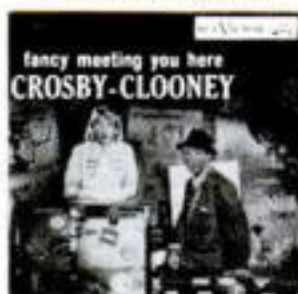
29. Prom king in beatful selection of ballads, lindys, chas. *Tea for Two.*



30. Pipes, drums. Black Watch Band in a sock sonic treat! Marches, folk songs.



37. Pianist's trio plays *Summertime, The Man I Love, All of You, Cherry*, etc.



38. Standards plus special material, fun-filled ad libs, Billy May arrangements.



39. 12 dance specials. *That Old Feeling, Midnight Sun, Heartaches*, others.



40. Wacky, banjo-pickin' country comics raise havoc with hits and specials.



41. Hi-fi hilarity! German band plays (?) concert pieces polkas, marches, etc.



42. Modern big-band jazz; top West Coast stars. *Chances Are*, other hits.



44. Clancy sings, Bob swings *Shine on Harvest Moon, Whif-fenpoof Song*, etc.



45. Romantic piano with orchestra. *Autumn in Rome, Secret Love*, 10 more.



46. 12 love songs. *I'll See You Again, You're My Girl, Time on My Hands*, others.



47. Fun-fat honky-tonk piano! *My Gal Sal, Side by Side, Charmaine*, 9 more.

IMPORTANT—PLEASE NOTE

REGULAR (monaural) long-playing records can be played on stereophonic phonographs; in fact, they will sound better than ever. However, stereo records are designed to be played **ONLY ON STEREOPHONIC EQUIPMENT.**

VICTOR POPULAR ALBUM CLUB



1. Melachrino plays *Autumn Leaves, Star Dust, While We're Young, Estrellita.*



2. Hottest album of year! All-star modern "mood" jazz from NBC-TV series.



3. Blues types, rhythm backing. *Hallelujah I Love Her So, 11 others.*



4. Original soundtrack recording from Rodgers and Hammerstein film hit.



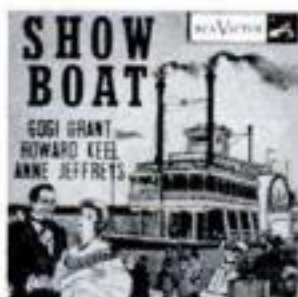
5. All-time classical best-seller by most talked-about pianist of the generation.



6. 18 evergreens. *It Could Happen to You, Love Letters, Birth of the Blues.*



7. Breath-taking new recording of best-selling suite from dramatic TV score.



8. New recording of Kern-Hammerstein classic. Gogi Grant, Howard Keel.



9. Operetta film stars remake their 12 biggest hits. *Indian Love Call, etc.*



10. Lanza sings 12 Italian classics. *Funiculi Funicula, Santa Lucia, more.*



11. Miller-styled modern repertoire Ray McKinley. *Birdland, 11 others.*



12. New remakes of their biggest hits. *Jalousie, Skaters Waltz, Liebestraum.*



19. Lush, rhythmic, exotic instrumentals. *Valencia, Granada, Delicado.*



20. His 12 biggest hits, newly remade. *Green Eyes, Linda Mujer, Adios, etc.*



21. Compote of Latin rhythms, cha chas, jazz. *Lullaby of Birdland, 10 more.*



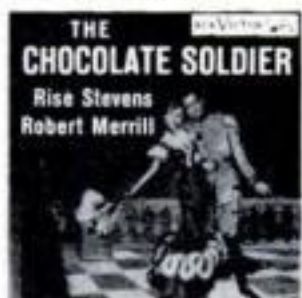
22. New Broadway star, top tunes from top musicals. *Flower Drum Song, etc.*



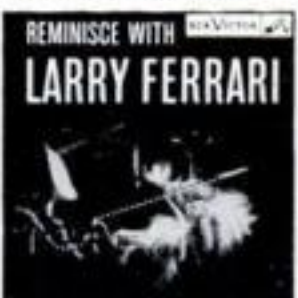
23. Cha-cha versions of Latin tunes. *Perfidia, Frenesi, Tampico, Yours, etc.*



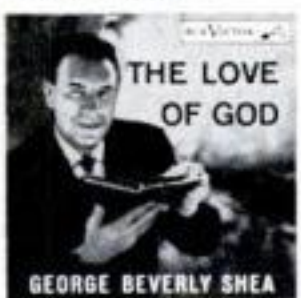
24. 12 pop favorites and light classics. *September Song, Warsaw Concerto, Diane.*



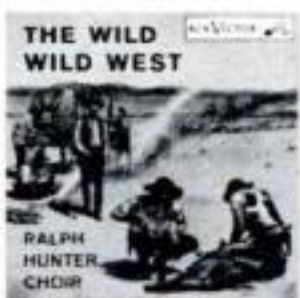
31. Lifting Strauss operetta. Rise Stevens, Robert Merrill, Jo Sullivan, others.



32. Liquid sounds from Hammond organ. *Over the Rainbow, Ebb Tide, etc.*



33. Rich baritone of the Graham Crusade sings some most-requested songs.



34. Fantastic sound, realistic atmosphere, familiar songs, virile singing. Different!



35. *My Man, Young and Foolish, They Say It's Wonderful, Yesterdays, 8 more.*



36. 12 meaningful songs. *Whither Thou Goest, Scarlet Ribbons, Only One.*



43. Warm, relaxed jazz by trumpeter Braff, Hank Jones, Roy Eldridge, etc.



48. Riotous musical satire, slapstick; wry commentary by TV's Henry Morgan.

THE RCA VICTOR POPULAR ALBUM CLUB, P. O. Box 80, Village Station, New York 14, N. Y.

P93-10

Please register me as a member of The RCA VICTOR Popular Album Club and send me the five albums whose numbers I have circled below, for which I will pay \$3.98 (plus a small postage and handling charge). I agree to buy six other albums offered by the Club within the next year, for each of which I will be billed at the manufacturer's nationally advertised price: regular L.P. usually \$3.98, at times \$4.98;

stereo versions \$4.98, at times \$5.98. (A small postage and handling charge is added to all prices.) Thereafter, I need buy only four such albums in any twelve-month period to maintain membership. I may cancel any time after buying six albums from the Club (in addition to those included in this introductory offer), but if I continue after my sixth purchase, for every two albums I buy I may choose a third album free.

Check which Division you wish to join: REGULAR L. P. ☐ STEREOPHONIC ☐

Name _____

Address _____

City _____ Zone _____ State _____

NOTE: If you wish your membership credited to an authorized RCA VICTOR dealer, please fill in below:

Dealer _____

Send no money. A bill will be sent. Albums can be shipped only to residents of the U. S., its territories and Canada. Albums for Canadian members are made in Canada, and shipped duty free from Ontario.

- | | | | | | | | |
|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |

PS Readers

TALK BACK



Do Burglars Read PS, Too?

THAT'S a lovely dodge for making your own little cache for hiding jewelry by cutting a hole in the top of a door [Aug., p. 161]. But if I were John Comstock, I'd buy a wall safe anyway. How do you know some burglars haven't the good sense to read PS too?

HENRY WALDRON, Yonkers, N.Y.

Cardiff Giant Is Still Around

THE piece on the Cardiff Giant [July] was great, but left me wondering. Is the giant on display where it can be seen by the public?

C. A. RAMBOW, Madison, Wis.

Anyone interested in seeing the Cardiff giant will find him at The Farmers Museum at Cooperstown, N.Y.

He Wants More on Roads

WHY don't you follow up your 1956 "Report to Motorists" on the Interstate highway system [May '56] and the toll roads [June '56]? What new additions or extensions are planned or underway? What future roads will soon be completed?

A comprehensive up-to-date report on the road program would provide very interesting reading. It would also serve as a guide for planning future trips.

J. L. LOPEZ, Flushing, N.Y.

Radar Still a Hot Subject

THAT letter writer who suggests hooking an aerial to a spark plug to disrupt the cop's radar [Aug.], better not.

Does he realize that by doing this he is transmitting electro-magnetic waves without a license, over a wide band of frequencies assigned for vital purposes by international agreement, and that Congress—not the local cops—has provided some pretty stiff penalties for this?

JONAS ARNOLD, Wilton, Conn.

... Connecting a car's spark plugs to the antenna wouldn't generate sufficient noise in the microwave region to interfere with a radar speedometer. True, there'd be considerable RF generated by shock excitation associated with the spark gap of the spark plug in and around the natural frequency of the antenna and with a number of higher harmonics. These frequencies, of course, are a factor of 1/20 of the frequency of the speedometer even for very small UHF antennas. These antennas are not the normal ham or broadcast-band type.

Secondly, it would be necessary that the plane of polarization of the antenna be proper in order to get into the receiver of the radar. In general, the antenna on a car is vertically polarized whereas the speedometer is horizontally polarized.

Finally, a terrific amount of noise in and around the ordinary broadcast and TV bands would be generated. This certainly would be frowned upon by the FCC.

NORMAN G. HANSEN
Automatic Signal Division
Eastern Industries, Inc.
East Norwalk, Conn.

... Looks like the new compact cars may give those radar cops trouble. I saw in the paper that some guy in Toronto wriggled out of a speeding ticket because his automobile was too short for the radar to gauge accurately. The radar is set for cars of standard size.

ROGER SCHULZ,
Omaha.

Uh-uh. The radar will pick up—accurately—anything on wheels, right down to scooters.



There's Always Another Way

THE tip on adding a window-screen catch by placing a screw in the sill so

THIS FREE SAMPLE LESSON

will prove that you can become an expert

ACCOUNTANT...AUDITOR OR CPA

FREE SAMPLE LESSON

We offer you this free sample lesson so that you can prove to yourself that you CAN master Accounting—quickly, thoroughly—in spare time at home.

You will see exactly how LaSalle's famous "Problem Method" works...how you are led step-by-step through actual accounting work—learning by doing and not by study of theory alone. First you tackle easy problems, then more difficult ones—until soon you master them all. And at every step you have the close personal guidance of LaSalle's large staff of expert accountants and CPA instructors.

One out of
every 13 of all
CPAs in the U.S.
has been trained
by the LaSalle
Problem
Method

GOOD-PAY JOBS IN MANY FIELDS

If you were an expert accountant right now, chances are you would find yourself in one of the best paid fields of business.

There are several big fields of opportunity open to men and women trained in accounting...opportunities that are wide open and highly inviting, offering maximum income and job security in good times or bad. And under LaSalle's "Problem Method" you can start earning while still learning—either in spare-time or full-time employment...or in business for yourself with no capital required.

Get the latest information by sending for our illustrated booklet, "Opportunities in Accounting"—plus free sample lesson. The coupon at right will bring both to you without cost or obligation. LaSalle Extension University, 417 S. Dearborn St., Chicago 5, Illinois.

This well-paid
LaSalle-trained
Accountant's
success could
be yours.



THIS SAME LESSON HAS STARTED HUNDREDS OF THOUSANDS toward well-paid accounting careers—in business, government, and public practice as CPAs. Even without previous knowledge, progress is rapid—earning power climbs fast. This sample lesson will show you why.

IF you have been envying the high incomes and good jobs enjoyed by thousands of men and women Accountants today...incomes ranging from \$5,000 to \$10,000 and more per year...why not launch such a career for yourself?

Do you doubt that you can?

Then let us send you—without cost or obligation—the same Lesson Number One with which LaSalle has started several hundred thousand men and women toward successful accounting careers. We want you to see for yourself how this remarkable method, originated by LaSalle, makes Accounting simple, interesting, practical, and certain...how it leads you step-by-step to a complete mastery of Accounting—and on up to the Certified Public Accountant Certificate if you so aspire. It doesn't matter

whether you've had previous bookkeeping experience, or whether you don't know a debit from a credit. Whether you wish to qualify as an expert accountant, advanced accountant, cost accountant, auditor, government accountant, income tax specialist, or public accountant...you'll find in LaSalle's Problem Method the exact plan to prepare you rapidly and inexpensively—in spare hours at home—without losing a day from your present job.

So right now, today...if you are an adult, employed, and earnestly ambitious for rapid advancement in one of the highest paying fields of business...send your name and address on the coupon below. We'll send you the free sample lesson—plus our illustrated book outlining today's career opportunities and how you can qualify for them. A coupon like this has started many thousands toward greater success. It can do the same for you. Mail it today!

Accredited Member, National Home Study Council

Clip Coupon...Mail TODAY!

LaSalle Extension University...A Correspondence Institution

Dept. 1083-H, 417 S. Dearborn Street, Chicago 5, Illinois

YES, I want to see how LaSalle's "Problem Method" works... Send me free sample lesson—also your book, "Opportunities in Accounting"...without cost or obligation.

Name.....Age.....

Street Address.....

City, Zone & State.....



Make More Money Soon Fixing Electric Appliances

Train at Home in Spare Time



Better Pay—More Opportunities

Get into a field where there is important work and opportunity for the trained man. Millions of electric appliances are sold every year. Every wired home now has an average of 8. Many of them need service and repair. Owners pay well to have them fixed quickly, properly. This is your opportunity for a better job, your own part time or full time business. NRI can give you the training you need, at home, in your spare time.

Spare Time Earnings Start Soon

Soon after starting you will be able to earn extra cash fixing toasters, clocks, fans, vacuum cleaners, etc., for neighbors and friends. Keep your job while learning and earning. Put spare time to work for you. Work in your basement, garage, spare room. You'll be amazed how easily, quickly you, too, can start earning many extra dollars. NRI shows you how. Even before you finish training your spare time earnings may pay for the course and equipment.

NRI Sends Tester to Learn and Earn

You need proper equipment to service today's automatic appliances. With this course you get parts to build professional type, multi-use Appliance Tester. You learn to use it. Takes guess work out of servicing. Mail coupon for FREE book and Sample Lesson. See how easy it is to learn. Find out about NRI—a school that for more than 40 years has been training men, through home study, for success, good pay jobs. Our reputation, record, experience back up this course. Write now to NATIONAL RADIO INSTITUTE, Dept. BK9, Washington, D. C.



**FREE Lesson and Book
Mail this NOW!**

NATIONAL RADIO INSTITUTE

Dept. BK9, Washington 16, D. C.

Send me Lesson and Book Free. No Salesman will call.

Name.....Age.....

Address.....

City.....Zone.....State.....

ACCREDITED MEMBER NATIONAL HOME STUDY COUNCIL

the hook can't be removed [June] is not a bad idea. But I think the system I use is simpler and it eliminates marring the sill with a screw hole. Using a pair of pliers, I turn the eye behind the curve of the hook, locking the hook in the eye. I use the same trick on cellar storm sash.

W. L. EASTERLY, Grand Haven, Mich.

Banner with a Strange Device

I've been mulling over that marker for identifying your car in a crowded parking lot ["New Ideas from the Inventors," June]. This could be a real boon to the first man to hoist a marker. But what of



the day when everybody raises a "flag"? Then you'll just be looking for the color and design on your flag instead of the color and configuration of your car.

J. M. HASSETT, Queens Village, N.Y.

Singing in His Ears

I WAS installing a 110-volt circuit in my garage and insulated wires came in contact with my hearing-aid receiver. A loud and distinct hum was heard. Curious, I separated the wires and held them individually on the receiver. The hot one sure did sing. The neutral one was silent. Ever since, I've used this method to check for a hot wire.

E. E. STEWART, Plainville, Mass.

Soft-Top Fan Blows His Top

I GOT a bit angry over that letter on the high cost of convertible tops [July]. Apparently Lee Johnson hasn't done much shopping. Nylon tops cost over \$100, but vinyl tops are about \$75 and you can get a cloth top for \$40.

The vinyl top on my car is five years old and it's still quite black and all in one piece. It is easily cleaned with a steel-wool pad from the kitchen.

JOHN BREIDENBACH, Boyertown, Pa.

On Cars Without Wheels

THE hotter engine in Dr. Bertelsen's car-without-wheels [July] worked per-

How I Turned \$1,000 into a Million

--starting in my spare time

AN AMAZING TRUE STORY THAT MAY CHANGE YOUR LIFE



by William Nickerson

WHEN I was 25, my wife Lucille and I started saving part of my first modest earnings as a telephone company employee. In three years we had saved the down payment to buy a home. I began looking about for a way to insure a modest retirement income to supplement my telephone company pension.

Starting with only the \$1000 cash equity in my home, I pyramided this modest asset into \$500,000 by the time I was 42 — all in my spare time. I retired at 42 to concentrate on my investments — with considerable time for gardening, swimming in our backyard pool, hunting, fishing and traveling.

Many friends turned to me for advice on how they could follow me up the road to fortune. Finally I decided to write a unique guidebook, in which I would share my money-making secrets.

But editors who read my first manuscript told me: "Ah, but your success depended on starting during the depression. It could never happen again!"

This led me to study other men's money-making experiences, and current, non-depression-period opportunities. Although I had not intended to increase my holdings, I found so many opportunities that in 2 years I doubled my estate to over \$1,000,000.

Now my book, **HOW I TURNED \$1000 INTO A MILLION**, is ready at last. And in it I reveal — and tell how to use — these 4 basic principles of traveling the last remaining road to great fortune still open to the average person:

1. How to harness the secret force of free enterprise — the pyramiding power of borrowed money. If you have ever experienced difficulty in arranging a commercial loan to go into business, you may have the idea that banks won't lend money to the "little fellow" for the purpose of making money. But I will show you how you can get lenders to put up gladly at least three dol-

lars for every one of yours, thereby quadrupling the earning power of your capital.

2. How to choose income-producing multiple dwellings in which to invest. If you are interested in investing in income-producing property for income alone, then you will probably get along all right without any advice from me, although even there I can give you many tips. But if you are out to pyramid your capital, there is a definite set of conditions you should look for.

3. How to make your equity grow. A fair market value of an income-producing property is in ratio to its income. Therefore, if you increase the annual net by means of the steps I outline, you increase the market value of the property — thereby increasing your equity.

4. How to virtually eliminate the "tax bite" on your capital growth. I will show you how you can increase your net worth steadily without its being subject to income taxes — not even capital gains tax! J. K. Lasser's famous guide, **YOUR INCOME TAX**, says of this method that "the mathematics have almost unparalleled attraction."

If you have about \$2500 right now — or if you can save only \$50 a month for the next four years — you can start out soundly along the road to a million dollars. To enhance your progress you will need an additional personal investment of \$50 a month, or \$600 a year, for two more years after that, making a total investment of \$3600. But then you will start receiving income from your investment. *In addition*, if you follow my instructions, your capital can grow at the following rate:

In 2 years, your \$3,600 grows to \$5,800.
In 4 years, you have \$11,575.
In 6 years, \$21,681.
In 8 years, \$39,363.
In 10 years, \$70,548.
In 12 years, \$124,884.
In 14 years, \$219,972.
In 16 years, \$386,376.
In 18 years, \$677,583.
In 20 years, \$1,187,195.

"There Must Be a Catch to It!"

Right now, it would be understandable if you were sputtering, "But — but — it's not that simple. There *must* be a catch to it!"

Of course there's a catch to it! There are hundreds of "catches" — hundreds of pitfalls and traps for the unwary who have never traveled what I call the "realty road to riches." But I made it, by learning as I went along. And you have a priceless advantage which I never had — the advantage of being able to know beforehand everything I had to learn by trial-and-error.

This method of making money is *not* dependent on continued economic boom or inflation. It is benefited and underwritten by America's continuing *population* boom, which is expected to result in 77 million more people by 1980. And it is comparatively recession-proof.

Read Book for 2 Weeks Free — Then Decide

The publishers invite you to examine my book free for two weeks in your own home. If you're not impressed, return the book in two weeks and pay nothing, owe nothing. Otherwise it's yours to keep for only \$4.95 plus a few cents postage. Mail coupon or write to: **SIMON AND SCHUSTER, Publishers, Dept. 416, 630 Fifth Avenue, New York 20, N. Y.**

.....
**SIMON AND SCHUSTER, Pub., Dept. 416
630 Fifth Ave., New York 20, N. Y.**

Please send me William Nickerson's 497-page book, **HOW I TURNED \$1000 INTO A MILLION**, for two weeks' free examination. If not convinced that this book can pay for itself literally thousands of times over, I may return it in 14 days and pay nothing. Otherwise I will keep it and remit only \$4.95 plus a few cents postage as payment in full.

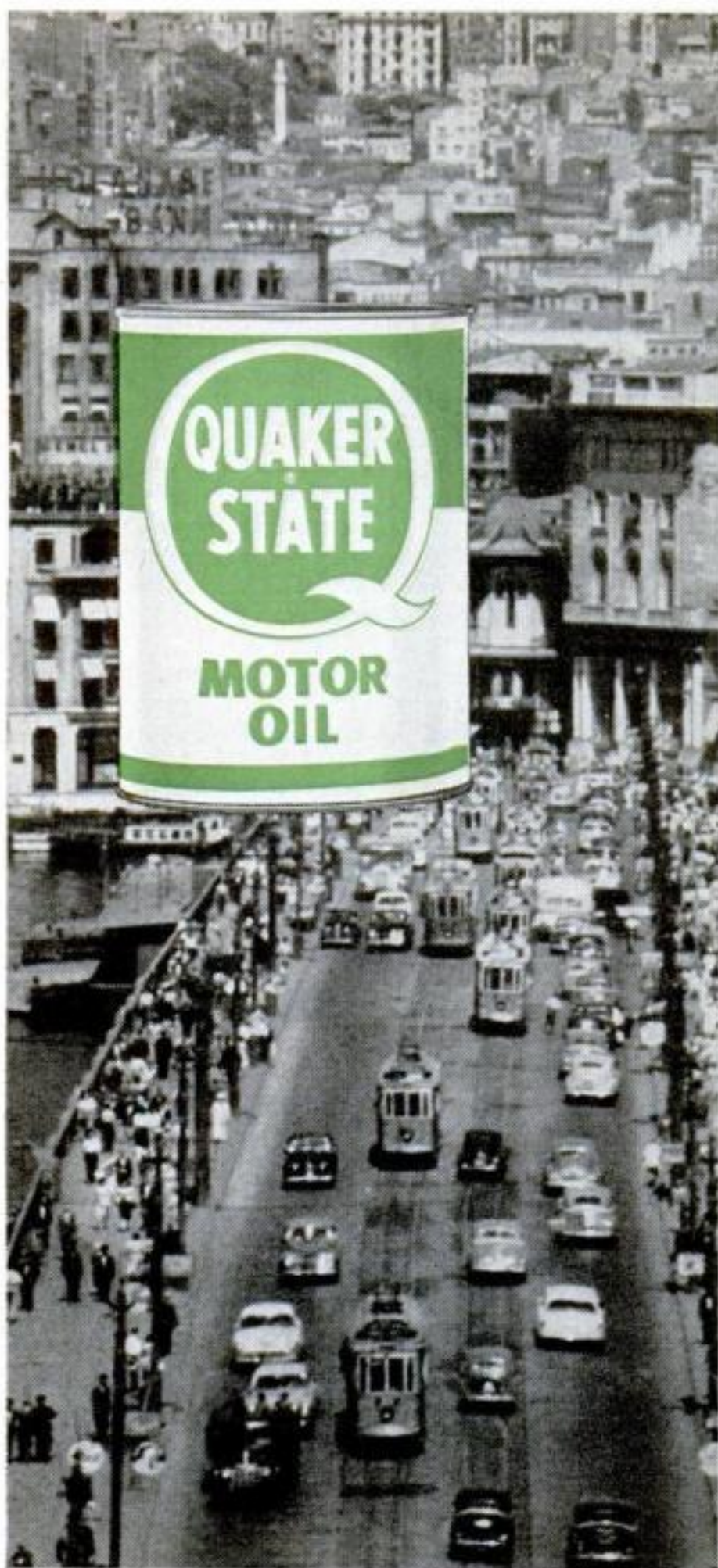
Name.....
(Please Print)

Address.....

City.....Zone....

State.....

☐ **SAVE POSTAGE.** Check here if you prefer to enclose \$4.95 WITH this coupon. Then WE prepay postage charges. Same return privilege, full refund guaranteed.



GALATA BRIDGE, ISTANBUL, TURKEY

On tour or around town, drive with Quaker State, the pure Pennsylvania oil that's fortified to stop both corrosive and erosive engine wear. In countless dynamometer tests and in millions of crankcases the world over, Quaker State has proved that it stops harmful deposits and acid action, keeps engines newer longer! For long-lasting protection against engine wear, specify Quaker State.

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.

Member Penn. Grade Crude Oil Assn.

1859— 100th Anniversary of Drake Oil Well —1959
and Founding of the Petroleum Industry

fectly—until he tried it over water in front of a battery of newspaper and TV cameramen. Then spray shorted ignition



wires, killing the engine. The photo shows the sad result.

L. T. JOHNSON, Chicago.

... This picture of a wheel-less craft shows it just about to leap out of the



hands of its inventor, Toivo Kaario [left]. He invented, built and patented the craft away back in 1935. It's good to know that the first vehicle without wheels was built in Finland—and didn't come out of Russia in eighteen hundred and umpteen.

P. SUOVA, Kuora Lieksa, Finland.

No False Starts with His System

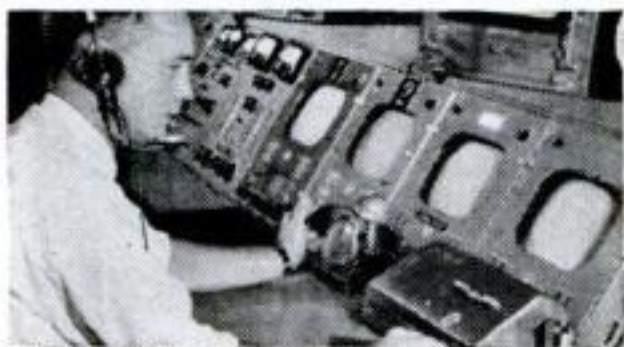
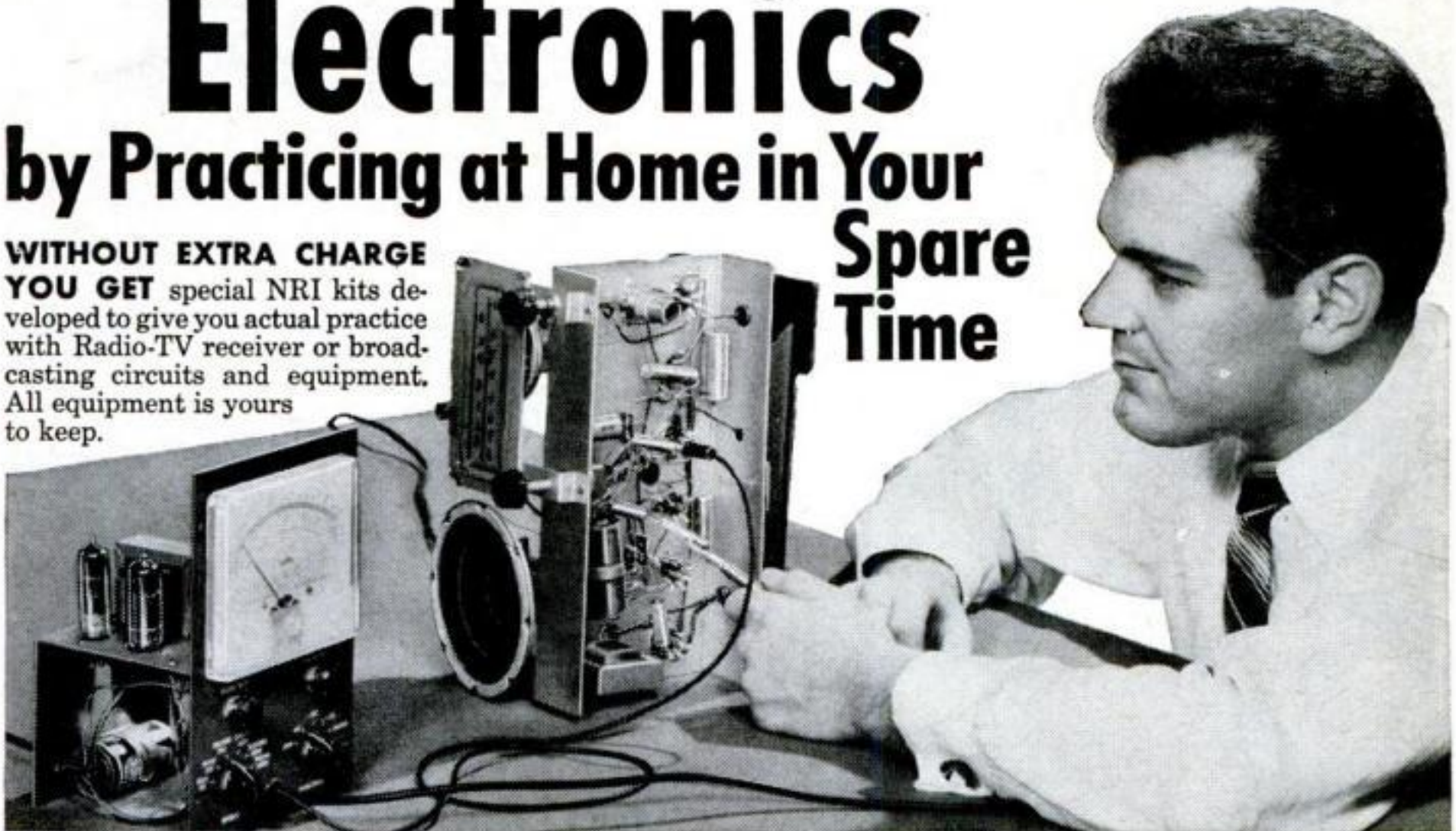
AFTER reading about the visual starting gun for track meets [July, p. 111], I decided to let loose an idea of my own: electrical starting blocks for track racing. Normally, the contacts would be open and the runner would have to keep his foot in the block so the timer could fire

CONTINUED

Learn Radio-Television Electronics

by Practicing at Home in Your
Spare Time

WITHOUT EXTRA CHARGE
YOU GET special NRI kits de-
veloped to give you actual practice
with Radio-TV receiver or broad-
casting circuits and equipment.
All equipment is yours
to keep.



RADIO-TV BROADCASTING (see above) offers
important positions as Operators and Technicians.
RADIO-TV SERVICING Technicians (see below)
needed in every community. Their services are
respected, their skill appreciated.



Fast Growing Field Offers You Good Pay, Success, Bright Future



J. E. SMITH
Founder

Bigger than ever and still grow-
ing fast. That's why Radio-TV
has special appeal to ambitious
men not satisfied with their
job and earnings. More than
4,000 Radio and TV stations.
More than 150 million home
and auto Radios, 40 million
TV sets. Color TV promises
added opportunities. For the
trained man, there are good jobs, bright fu-
tures in Radio-TV Servicing or Broadcasting.

Training PLUS opportunity is the *ideal*
combination for success. So plan now to get
into Radio-TV. The technical man is looked
up to. He does important work, gets good
pay for it. Radio-Television offers that kind
of work. NRI can supply training quickly,
without expense of going away to school.
Keep your job while training. You learn
at home in your spare time. NRI is the
OLDEST and **LARGEST** home study Radio-
TV school. Its methods have proved success-
ful for more than 40 years.

Added Income Soon - \$10, \$15 a Week in Spare Time

Soon after enrolling, many NRI students
start to earn \$10, \$15 a week in spare time
fixing sets. Some pay for their training and
enjoy extra luxuries this way. Some make
enough to start their own Radio-TV shops.
NRI training is *practical*—gets quick results.
Easy to understand, well illustrated lessons
teach you basic principles. And you **LEARN-**
BY-DOING by practicing with kits of equip-
ment which "bring to life" things you study.

Find Out What NRI Offers

NRI has trained thousands for successful
careers in Radio-TV. Study fast or slow—as
you like. Diploma when you graduate. Mail
coupon now. Paste it on a postcard or mail in
envelope. **ACTUAL LESSON FREE.** Also 64
page catalog that shows opportunities, shows
equipment you get. Cost of NRI courses low.
Easy terms. **NATIONAL RADIO INSTITUTE,**
Dept. 9KB, Washington 16, D. C.

N.R.I. TRAINED THESE MEN FOR SUCCESS



"I was repairing Radios
by 10th lesson. Now
have good TV job."
M. R. LINDEMUTH,
Fort Wayne, Ind.



"Doing spare time re-
pairs on Radio and TV.
Soon servicing full
time." **CLYDE HIG-**
GINS, Waltham, Mass.

"I had a successful
Radio repair shop. Now
I'm Engineer for
WHPE." **V.W. WORK-**
MAN, High Point, N.C.



"There are a number of
NRI graduates here. I
can thank NRI for this
job." **JACK WAG-**
NER, Lexington, N. C.



VETERANS Approved Under G.I. Bills

SEND FOR BOTH FREE

National Radio Institute

Dept. 9KB Washington 16, D. C.

Mail me Sample Lesson and 64-Page Catalog
FREE. (No salesman will call. Please write plainly.)

Name _____ Age _____

Address _____

City _____ Zone _____ State _____

Accredited Member National Home Study Council



*When
it comes
to winter
driving*



cars start faster (use less gas, too) with GUMOUT

You'll get quicker, battery-saving starts this winter if you clean your carburetor with GUMOUT now. And a clean carburetor gives you a smoother running engine with improved gas mileage, too.

Just add GUMOUT to your gas tank. It cleans the carburetor while you drive. Thousands of car owners count on GUMOUT all year 'round. Why don't you?

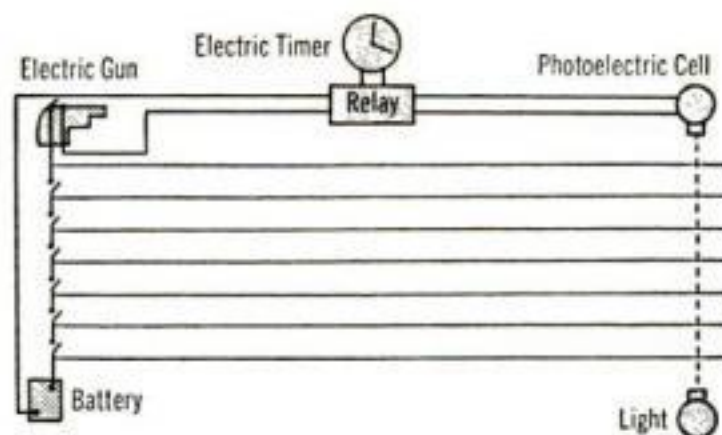
*Sold at most service stations
and auto supply stores.*

GUMOUT DIVISION

Pennsylvania Refining Co.

2670 Lisbon Road, Cleveland 4, Ohio

the gun. Firing the gun would start the clock, and the clock would stop when a photocell beam was broken. The system



would eliminate false starts and provide accurate timing.

E. LINDER, Fullerton, Cal.

It would work, and would time the winner, though no others. But it wouldn't replace the judges—and it wouldn't determine who won.

Brazil Was First?

LAST April, you showed an "airborne" gas station just built in Cincinnati. I finally got a picture to show that we have



one, too, and ours was built in 1940. The people of my town say (jokingly) that the five-story building across the street from it will be razed for the takeoff.

J. DA FONSECA, Porto Alegre, Brazil.

Lights Out? Try This

I HAVE rigged up my car so that I never need worry about a headlight conking out. Maybe others would like to try it, or get a garageman to do it:

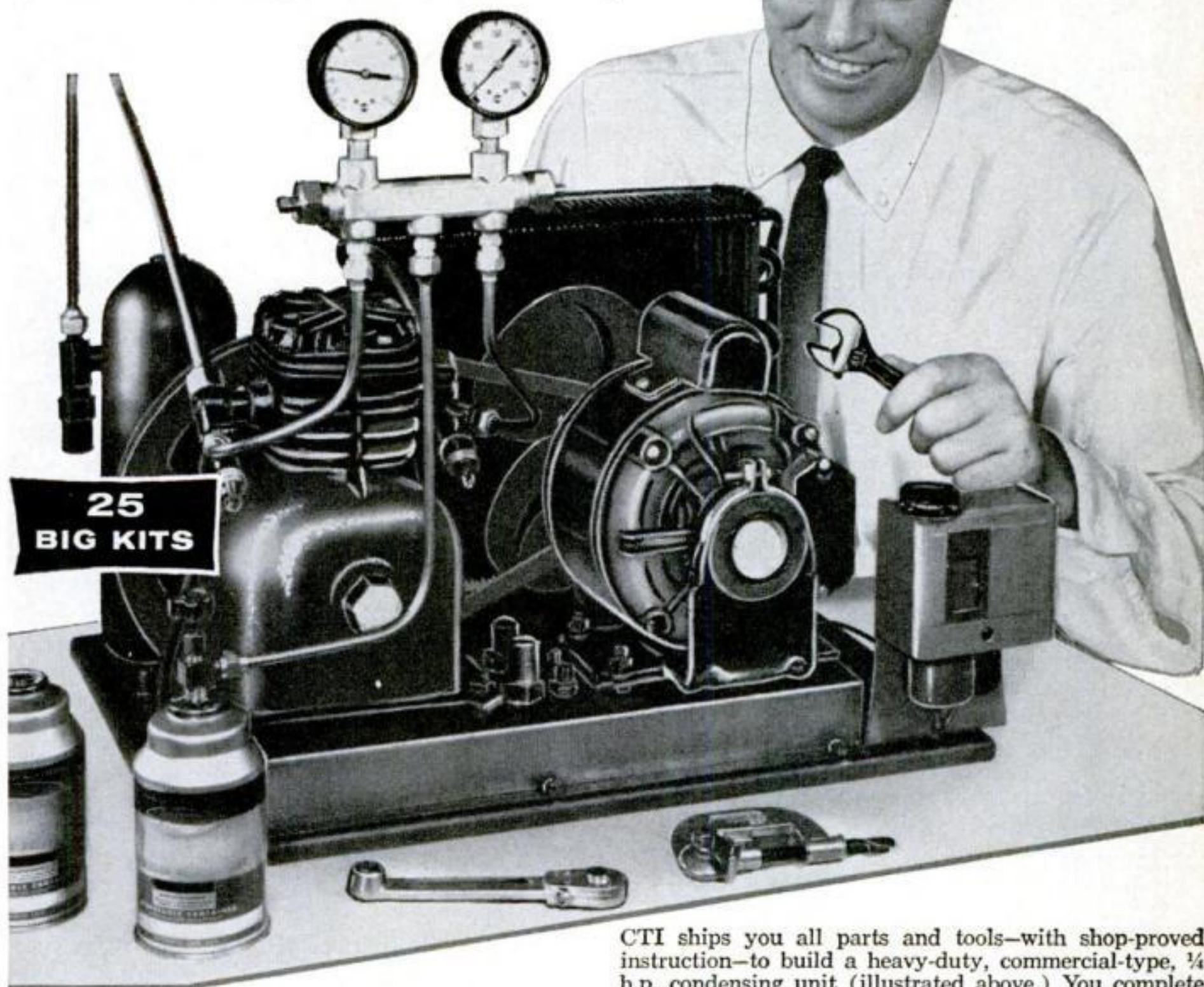
Run a wire direct from the battery terminal to a switch mounted in front of the driver, then connect a wire from the switch direct to the headlights. Put a fuse in the line just after it takes off from the battery-cable terminal.

This arrangement can fail only when the main battery cables have come loose, or a light filament has burned out, or the fuse has blown. Such failure is extremely unlikely and will never occur if the owner gives the car proper periodic inspection.

ROY P. FRY, Portland, Ore.

CONTINUED

THIS is how you train at home to become a SERVICE ENGINEER in the Air Conditioning and Refrigeration industry...



An old industry offers bright new opportunities

Almost any industry has jobs for men with special skills. In many cases, good pay and steady work are the rule. Yet—would you be happy in being a repairman all your life? Wouldn't you rather have a job that presents a challenge—still bigger money—an opportunity to grow?

Listen, if you are ambitious to *keep climbing*: The air conditioning and refrigeration industry is growing so fast that 20,000 newly-trained technicians are needed each year. They can come only from the technical schools. Because installation and repair work is important, graduates may expect high pay and security right from the start. That's not all. *A well-trained technician has a great opportunity to develop into a Service Engineer.* As a matter of fact, 90 percent of all refrigeration engineers are former repairmen!

If you seek a *career*, not just a job, get into air conditioning and refrigeration. Your first step is to gain skill and knowledge. Learn at home by practicing with 25 big kits that CTI sends. Acquire experience as you train.

CTI ships you all parts and tools—with shop-proved instruction—to build a heavy-duty, commercial-type, ¼ h.p. condensing unit (illustrated above.) You complete 23 field-type projects—do 10 trouble-shooting jobs. You make home a training center!

So practical is CTI training that many students earn extra cash in spare time soon after they start. They make calls on their own, or get part-time jobs with local appliance dealers or air conditioning contractors.

But read the complete story. It is told in a new CTI catalog. *Just fill out and mail coupon below for your copy.* Sample lesson included. No cost nor obligation—Commercial Trades Institute, Chicago 26, Ill.

COMMERCIAL TRADES INSTITUTE

1400 GREENLEAF AVENUE
CHICAGO 26, ILLINOIS

DEPT. R-644

Send catalog, *Success in Air Conditioning & Refrigeration*, and Lesson Sample. Both FREE.

Name _____ Age _____

Address _____

City _____ Zone _____ State _____



This Powerful Feridium* Anode is built into every



LEE

Resin-weld*

OIL FILTER

**THAT'S WHAT MAKES IT THE
ONLY FILTER IN THE WORLD THAT COMPLETELY
REMOVES BOTH ENGINE SLUDGE AND ACIDS —
STOPS THE TWO MAJOR CAUSES OF ENGINE WEAR!!**

Discover for yourself the amazing action of this entirely new kind of oil filter cartridge — a miniature oil refinery under the hood of your car! Discover how its **DUAL ACTION** not only traps injurious micron-size particles (abrasives sludge) too tiny for the eye to see — **IT ALSO NEUTRALIZES AND REMOVES ENGINE-EATING ACIDS!**

The patented Resin-weld* one-piece construction insures Positive Filtration from oil change to oil change. The resin-impregnated, heat-treated and cured accordion element in the plated metal shell (no paint to contaminate the oil) — the thousands of pre-determined openings — all provide unrestricted oil flow.

If you demand top engine performance and value your engine life, insist on a LEE Feridium* Anode OIL FILTER. It's two filters in one — it gives you twice as much engine protection at no extra cost!!

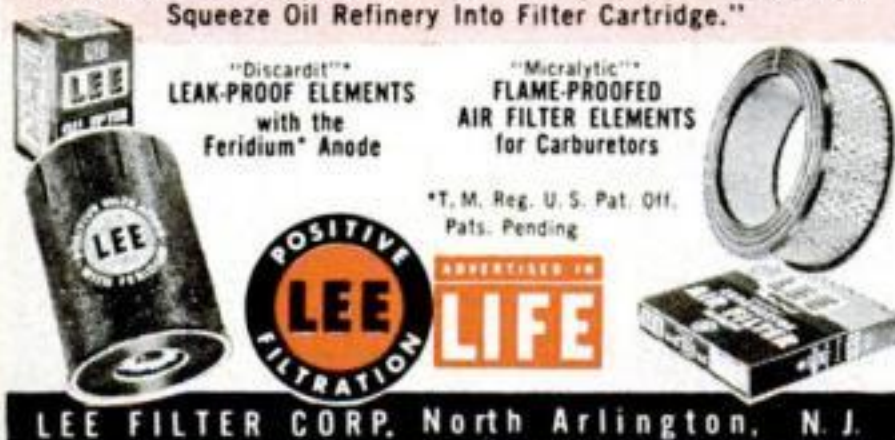
THIS COMPARATIVE PERFORMANCE*
CHART OF THE 4 MOST-POPULAR
OIL FILTERS PROVES LEE
Feridium* Anode FILTER
SUPERIORITY

	LEE Feridium* Anode FILTER	OIL FILTER "A"	OIL FILTER "B"	OIL FILTER "C"
RATE OF FILTRATION	5 Min.	8 Min.	9 Min.	5 Min.
ACID-DESTROYING PROPERTIES	COMPLETE	No effect	No effect	No effect

* From Independent tests
by The Carlson Laboratory.

LEE Feridium* Anode FILTERS conform to functional standards set by the Society of Automotive Engineers, U. S. Army Procurement, Fort Belvoir Research and Development and initial equipment specifications of car manufacturers. Sold all over the world at Service Stations, Garages, Accessory Stores and Car Dealers. Also available for most imported cars.

Write for free copy of the fascinating story, "Engineers Squeeze Oil Refinery Into Filter Cartridge."



LEE FILTER CORP. North Arlington, N. J.

The Rear-Steering Trailer

AUGUST Picture News [p. 111] shows a trailer with a fixed middle axle and a pivoted axle at the rear. You say: "This keeps rear wheels of a long trailer within the arc of tracks of its tractor. Anything the tractor clears also is cleared by the trailer."

Oh yeah? Perhaps the rear wheels of the trailer will "track" behind the tractor, but what are you going to do with the fixed wheels at center? I know a few streets I'd like to see this tractor-trailer arrangement attempt to negotiate.

J. RAMSEY, Philadelphia.

Don't Throw Away that Old PS

YOUR magazine, when read, should be sent abroad by a large percentage of your subscribers. This would do wonders to build up understanding and respect for the U. S. A. Magazines are our best ambassadors of good will and it's stupid not to use old copies, especially when so many foreigners can read English.

Won't you therefore urge your readers to mail their used issues to some foreign address? They may send them to the USIS Chief, c/o American Embassy, in whatever foreign capitals most interest them; to any university librarian; or to any foreign address they may have. If they'll drop me a line, I'll be glad to supply some worthy foreign addresses.

ALBERT CROISSANT, PRES.

Magazines for Friendship, Inc.
Occidental College, L. A.

Christmas-Tree Tail Lights

WHILE following '59 Fords, I noticed that when the foot brake is applied, all



anyone behind can see is almost blinding light from the stoplights. I went home and altered my own '59 Ford.

I painted the inside surfaces of the lenses black (the part that reflects light to the side) to retard the reflection of light on the decorative trim that surrounds the light. Maybe other readers would like to follow suit.

J. H. HUTCHINSON, Leavenworth, Kan.

New **Success Program** Gives You Short-Cuts to Executive Skills

AT AMAZING LOW COST—TAKES MINUTES A DAY!

Revolutionary New Monthly "Progress Kits" Develop the Abilities You Need to Win Faster Promotion, Increase Your Earning Power

NOW—in your own home—you can master the fundamentals of success—pave the way to a richer life for yourself and your family. You can benefit from the most practical, scientific plan ever devised to help men increase their earning power. Others have paid hundreds of dollars to learn the tested and proven success secrets available to you in this Program at the low cost of only a few pennies a day.

The New Nelson Doubleday PERSONAL SUCCESS PROGRAM

Month by month, the Nelson Doubleday Personal Success Program will show you how to develop the basic executive abilities that pay such handsome dividends today. One by one you'll acquire the important skills that mark "the man on the way up"—skills in getting along with people—creating new ideas—understanding business figures—winning new friends wherever you go—speaking in public—organizing your time efficiently—writing business letters, reports and memos.

You start with a remarkable memory trainer. Then every 30 days you will receive a new self-training Progress Kit on an essential success subject.

There has never been anything like these "Progress Kits" available—for completeness, authority and detailed step-by-step guidance. Nothing has been left out. The expert business leaders, psychologists and educators who planned the Program have included all the know-how and actual practice you need. Their simplified new self-instruction method enables you to gain "practical experience" in the odd moments that now go to waste every day.

Sample "Memory-Trainer Kit" only 10¢

To introduce you to this new kind of personal achievement plan, Nelson Doubleday offers you a valuable "sample kit" almost as a gift. You'll receive a remarkable 10,000 word handbook—*How To Remember Names and Faces*—that gives you the secrets of professional memory experts. In the first five pages you'll learn one easy trick that will double your memory power—overnight. Soon your new "automatic memory" for names, faces, facts will win new friends, gain recognition on the job.

As with each Progress Kit in the Program, a set of handy practice and application cards accompanies the memory handbook to help you "learn by doing." Slip them into the pocket case provided—for use in your spare moments. They've been scientifically planned to add a "real life" dimension to self-instruction.

Along with your memory training material—as an extra bonus to launch your own Success Program—you will receive a self-evaluation Aptitude Test.

Will you invest 10¢ in your future?

There's plenty of room for you "at the top." Leaders are sought and welcomed more than ever in the business world today. To begin qualifying for the opportunities ahead, accept the valuable introductory package offered by the Personal Success Program for only 10¢. There is no obligation whatever—and no salesman will call. This is merely a "demonstration offer."

If you are delighted with your first kit and wish to continue with the Program, you will receive a new Progress Kit each month, for which you will pay—not the many dollars charged by most "schools"—but only \$1 plus small shipping cost. You stop whenever you like. Mail the coupon today. The Nelson Doubleday Personal Success Program, Garden City, N. Y.

START WITH PRE-TESTED "MEMORY-TRAINER KIT" FOR ONLY 10¢



Here's What You
Get for only

10¢

1. "HOW TO REMEMBER NAMES AND FACES"—the self-instruction handbook that increases your memory power up to 500% in a few weeks. You possess a skill that's worth a million when you can instantly recall names, faces, facts.
2. POCKET-TRAINER MEMORY CARDS—an exclusive feature of the Personal Success Program that allows you to sharpen your memory with "real life" practice. Handy pocket holder included.

3. HANDSOME DESK FILE—pictured above, for convenient storing of your Progress Kits.

4. FREE BONUS GIFT:

Self-Scoring APTITUDE TEST

Complete 32-page self-evaluator that scientifically reveals to you—and you alone—your present aptitudes, vocational interests, and "hidden potential."

SEND ONLY 10¢ TODAY — STOP WHEN YOU LIKE



**Nelson Doubleday Personal Success Program
Dept. 9-PS-O, Garden City, New York**

I enclose 10 cents to help cover shipping charges. Send me at once my introductory package consisting of 1) handbook "How to Remember Names and Faces" 2) practice and application cards, plus pocket Card Holder 3) handsome desk-top File Case and 4) self-scoring Aptitude Test.

After examining this package, I will decide whether or not I wish to continue with the Program. If not, I will simply let you know. If I do continue you will send me a new Progress Kit each month for only \$1 plus shipping. I am not obligated to take any minimum number of kits, and I am free to stop at any time.

PS-2A

Print
Name.....

Address.....

City.....

Zone.....

State.....

SAME OFFER TO RESIDENTS OF CANADA: Personal Success Program, 105 Bond St., Toronto 2. Offer good in U.S. & Canada only.



Now—handiest tool

Do 101 jobs with the blue-hot

Five minutes after you use this new tool you'll wonder how you ever did without it!

Now, with the flick of a match, you install asphalt tile, thaw frozen pipes, solder tools and toys, remove old paint, solder copper tubing — do hundreds of jobs around your home — with the easy-to-use Bernz-O-Matic Torch!

There's no filling! No spilling! No pumping! No priming! Just screw the burner unit onto the safe UL-approved, disposable fuel cylinder — and your Bernz-O-Matic Torch is ready! It lights instantly!

And every job you do . . . like antiquing furniture . . . costs you only pennies. A Bernz-O-Matic fuel cylinder lasts up to 15

hours with pencil-type flame. Replacement cylinders available from any hardware store. Cost only \$1.94.

Torch units like the one shown above are \$6.95. Torch kits with soldering tip, utility burner and flame spreader — or a complete kit with sturdy metal carrying case and handy sparker — are also available . . . up to \$9.95.

Ask your hardware dealer to demonstrate the most do-everything tool since your electric drill . . . The Bernz-O-Matic Propane Torch. And while you are there, be sure to enter your name in the big Family Sweepstakes of 1001 Prizes.

The Otto Bernz Co., Inc., Rochester, N. Y.



**SWEATS
COPPER TUBING**



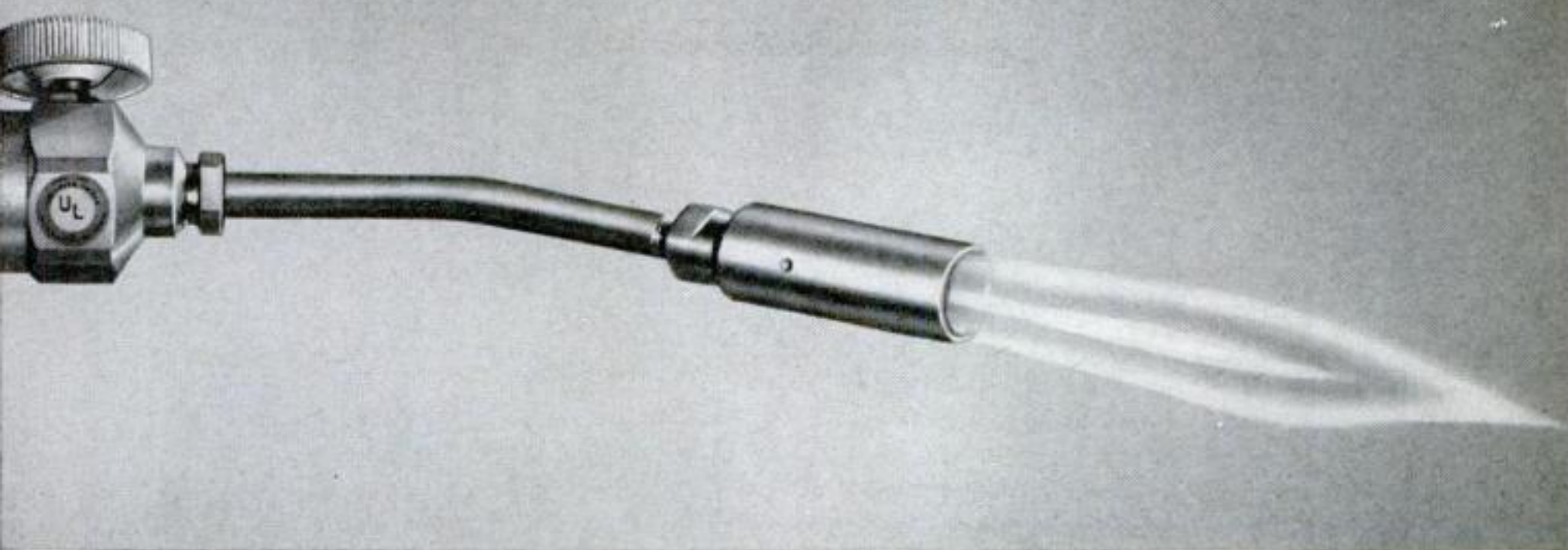
**THAWS
PIPES**



**SOFTENS
TILE**



**ANTIQUES
FURNITURE**



since the electric drill
flame of a Bernz-O-Matic Torch

Family Sweepstakes*

1001 prizes...just enter your name at your hardware store to win.

2 expense-paid trips for two to Mexico City and Acapulco as first prizes.

PLUS: 10 Fedders Air Conditioners — 10 Scott Outboard Motors — 10 Motorola Stereo Hi Fi — 10 Shopsmiths — 50 Lionel Train Sets — 202 Bernz-O-Matic Ceramic

Grilles — 101 Stanley Sabre Saws — 101 Jefferson Golden Hour Clocks—101 Bernz-O-Matic Two-Burner Camp Stoves — 101 Hamilton Beach Fry Pans — 101 Westinghouse Spoutless Coffee Makers — 101 Bernz-O-Matic Lanterns — 101 Bernz-O-Matic Single-Burner Camp Stoves.

*Drawing subject to all Federal, State, and Local laws and regulations.



**REMOVES
PAINT**



**LIGHTS
CHARCOAL FIRES**



...have you heard...?

What'll you be smoking? Cigarettes that contain mostly tobacco—or any tobacco at all—may be in the minority within the next few years. Researchers are huffing and puffing away at all manner of new and exotic blends.

Though cigarette sales are booming, lung-cancer statistics—and denials of their validity—keep the argument hot. There are antismoking campaigns under way in many high schools. One company has begun to plug its cigarettes (Vanguards) in a “smoke without fear” campaign. Vanguard bills itself as the no-tar, no-nicotine, no-arsenic, in fact, no-tobacco smoke. It's a blend of nine vegetable fibers.

Emboldened by the success of menthol flavor, (latest entry is Lorillard's “Spring”), the sample-takers for many big cigarette firms have tested reactions to a wide assortment of tastes and smells. They report the public smiles with favor

on smokes that smack of apple-blossom, rum, cinnamon, and carnation flavors.

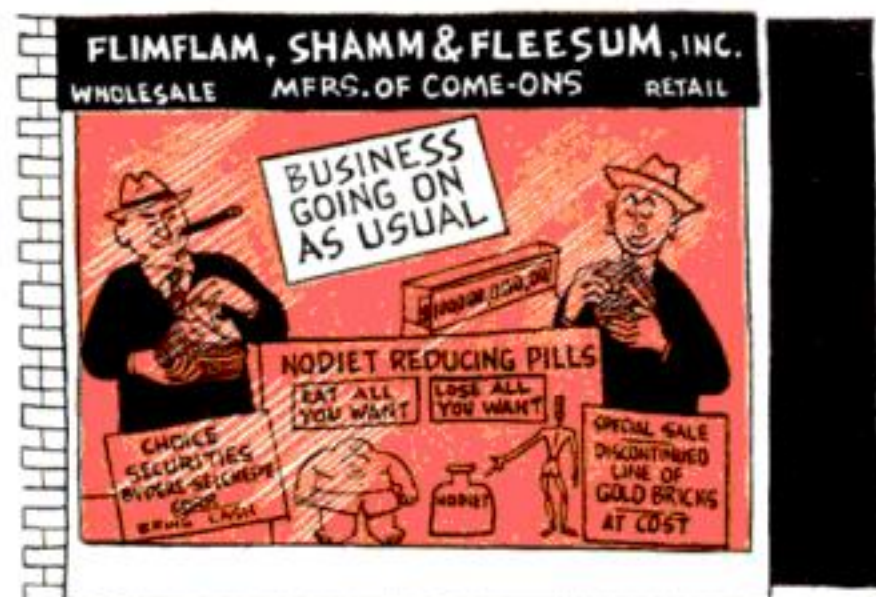
Even the Russians are interested in our smoking habits. The most popular question addressed to RAMAC, the electronic brain at the American exhibition in Moscow was, “How much do Ameri-



can cigarettes cost?” The machine clicked out:

“In the United States the price of a package of 20 cigarettes varies from 20 to 30 cents. The average semiskilled worker in the United States earns enough money in one hour to buy about eight packages. Almost all cigarettes sold in the United States are of American manufacture.”

Russians pay about 16 cents for a pack of 20 unfiltered cigarettes. The average semiskilled worker can buy four packs with an hour's wages.



Confidence men are doing fine, glumly reports the Better Business Bureau. Times are good and people and their money easier to part. Sharpies drop their “make-money-at-home” schemes, and push for bigger stakes: stock swindles, home-remodeling rackets, phony repair appraisals.

Biggest moneymakers, (\$100 million a year), may be the weight-reducing pills—the ones guaranteed to slim you without diet or exercise.

Worried by wild claims, the American Medical Association published results of experiments with 81 fat patients among mentally deficient (chosen to lessen the psychological factors involved).

In “blind” tests—where neither nurse nor patient knows what drug is being given—they found no weight loss and no appreciable difference between patients given phenylpropanolamine, the prime ingredient of the popular pills, and patients given sugar pills. A group given a prescription drug recognized as an appetite-reducer, *did* show a weight drop, however.

Trouble with con artists is that they slip through legal loops or switch from



NOW! You Can Master MATHEMATICS

AT HOME—IN ONLY 10 MINUTES A DAY—WITH THIS COMPLETE SELF-INSTRUCTION COURSE

IN good times or bad, the man with "know-how" is always in demand. Now, in this fast-moving age of electronics, missiles, automation and nuclear science, mathematics is a "must" for men who want to get ahead. A knowledge of mathematics will open up wonderful opportunities for YOU as a designer, draftsman, superintendent, foreman, technician, inspector, statistician or engineer.

10 minutes a day

That's all it takes, with the aid of this simplified five-volume home-study course, to gain all the benefits of a complete knowledge of mathematics—benefits like security, higher pay, self-confidence, and a better, more important job.

Based on new, easy-to-follow methods developed by Professor Thompson at Pratt Institute, this new course will show you how to master every type of mathematical problem quickly and easily. You start right at the beginning with a review of arithmetic (with dozens of new, time-saving shortcuts) and proceed step-by-step into every practical phase of higher mathematics.

Every minute pays big dividends

The time you spend with this course will really pay off. Mathematics is the basic tool of all scientific and technical work and men who know how to use it are quickly recognized and rewarded. Without a working knowledge of algebra, trigonometry and geometry, even the most capable men can be left behind while others forge ahead to higher-paying jobs.

If purchased individually, these five volumes would cost you \$2.95 each or a total of \$14.75. But, if you order them now, as a set, you will receive the entire course—all five volumes—for only \$1.85 down and \$2.00 a month for four months—a saving of 33%!

Try the complete course FREE

Don't send a penny! Just mail coupon and we will rush you all five books to examine free for ten days. Unless you are convinced that this course in book form is exactly what you need to master mathematics, you may return the books and owe nothing. Otherwise keep them and send the easy payments indicated in coupon.

D. Van Nostrand & Company, Inc.
Dept. 3510A,
120 Alexander St., Princeton, N. J.
(Est. 1848)

GET A BETTER, MORE SECURE JOB!

If you're worried about the security of your present job, you ought to prepare yourself now for a good future and higher pay by studying mathematics this amazingly simple way—at home, in your spare time. We will be glad to send you all five volumes for ten days free examination. Don't gamble with your future—send the coupon today.

Five big volumes explain everything about mathematics MATHEMATICS FOR SELF STUDY

A complete course and reference library, by Prof. J. E. Thompson, B.S., in E.E., A.M., Pratt Institute, New York, N. Y.

ARITHMETIC. How to quickly figure fractions and decimals, ratio and proportion, powers and roots, etc. Many time-saving "short-cuts" for calculating insurance premiums, loan rates, taxes, bank interest, charts and graphs. 293 pages.

ALGEBRA. Equations, logarithms, probabilities, slide rules, powers, roots, etc. Explains hundreds of applications involving machines, autos, engines, ships and planes. 320 pages.

GEOMETRY. Angles, cubes, spheres, planes, solids; figuring diameter and circumference; estimating materials needed for areas and solids; figuring volume, capacity, hundreds of other practical problems. 323 pages.

TRIGONOMETRY. How to solve problems in surveying, mechanics, astronomy, navigation. Calcula-

tion involving construction of buildings, bridges, dams; cutting of gears, etc. 239 pages.

CALCULUS. Computing speed, integral formulas, functions, derivatives. How to find the most efficient design for any mechanism, engine or moving vehicle; analyze sales figures; figure problems in statistics, insurance, physics, electricity, radio, and much more. 358 pages.



MAIL THIS COUPON TODAY

D. Van Nostrand & Company, Inc.
Dept. 3510A, 120 Alexander St.
Princeton, N. J.

Please send me—for FREE examination—the five-volume set of MATHEMATICS FOR SELF-STUDY. If not delighted, I may return books within ten days and owe nothing. Otherwise I will send you \$1.85 plus small delivery cost as first payment and \$2.00 per month for four months.

(In Canada: 25 Hollinger Rd., Toronto 16; Price slightly higher)

Name.....
(Please Print Plainly)

Address.....

City.....Zone.....State.....

☐ **SAVE!** Send full payment of \$9.85 WITH this coupon and WE will pay all delivery costs. Return privilege and refund guaranteed.

...have you heard...?

racket to racket too fast for authorities to catch up:

The color TV fraud. One of last year's frauds was the TV screen that was supposed to convert your black-and-white set to color. It did. The magic gimmick was a thin, transparent sheet of plastic tinted blue on top, beige in the middle, green on the bottom.

The promoter was arrested and indicted, then paroled pending trial. Two

months later he was picked up on a grand larceny charge for stealing "TV converters" from a supplier. Trial was postponed and he was let out on bail.

Still later, authorities grew suspicious of advertising for "Bathe A Weigh"—a compound you add to your daily bath supposedly to trim off as much as 30 pounds painlessly. Guess where the company does business? Right: same address and phone number as the TV company.



Men are showoffs. Would-be supermen, they're careless and often foolhardy. Sound like an ardent feminist talking? No: just some comments by the director of the home division of the National Safety Council, Thomas Fansler. Here's his case:

- Seven out of 10 persons who die in,

or as a result of, accidents are males.

- Men get killed more often in accidents involving fires, drownings, firearms, railroads, poisons.

- They get killed three times as often in automobile accidents.

Thirty years ago the average white female could expect to outlive the male by three years; now it's up to six.

Fansler says it's because women are more careful. They light matches away from, rather than towards themselves. Then the hazardous jobs around a house are a man's; the potentially lethal tools, his. And if he's a showoff...

Fansler advises wives: Urge your husband to play it safe in working around the house. Tell him he's not expendable.

Hunting Abominable Snowmen will be a side venture in Sir Edmund Hillary's latest Himalayan trek.

The Mount Everest conqueror wants to test how well man can acclimatize himself to rarefied atmosphere—a consideration in space travel. He'll take half a dozen picked men to winter in the Tibetan mountains at heights ranging from 16,000 to 20,000 feet. To condition themselves, they'll make excursions on skis—hopefully seeking the trail of the elusive, hairy, manlike creature supposed to in-

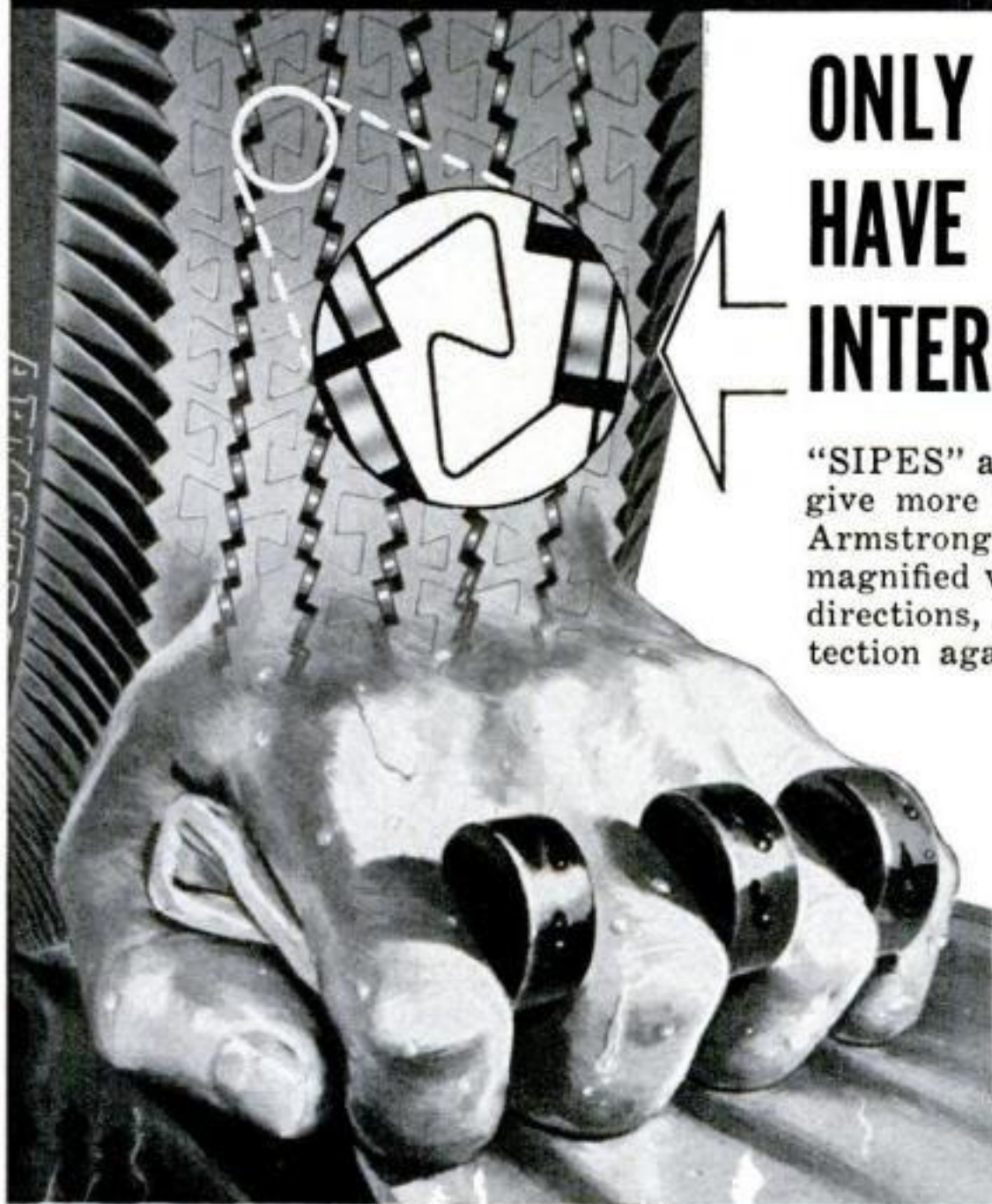
habit this forbidding region of Asia.

The following summer another group will set up camp with oxygen supplies at a two-day climbing distance from the top of the lofty peak. Sir Edmund's crew will then make a less breathless dash for the summit.

Although he won't be one of the six, Sir Edmund has had some oxygenless experience: He remained for half an hour at the top of Everest (29,000 feet), without using a mask. A year later Swiss climbers managed the feat for an hour.



TIRE FACTS THAT CAN SAVE YOUR LIFE



ONLY ARMSTRONG TIRES HAVE PATENTED INTERLOCKING SIPEs

"SIPEs" are the slots put in a tire's tread to give more gripping edges, to stop skidding. Armstrong's interlocking, S-shape siping (see magnified view at left) provides grip in ALL directions, gives you sharply improved protection against both forward and side skids.

AND UNLIKE tires which have siping just cut into the tread, Armstrong siping is *molded* in, deeply. Long after the mileage that wears away the shallow siping of ordinary tires, Armstrong siping continues to give you full protection. Safeguard your car against deadly skids . . . compare, and see how Armstrong gives you far more siping than other leading tires.

ONLY ARMSTRONG TIRES HAVE PATENTED SAFETY DISCS

*—Grip the road to
stop deadly skids
as no other
tires can!*

ARMSTRONG TIRES



TREAD STAYS OPEN

Like fist above with discs between fingers, tread CAN'T squeeze shut. Hundreds of Armstrong Safety Discs hold tread's gripping edges open, always ready to "bite."

ORDINARY TIRES



TREAD CAN CLOSE

Without discs, tread CAN squeeze shut, like fist above. Tire's gripping edges are pushed together, lose their grip. Even brand new tires can go smooth like this . . . and you skid!

ARMSTRONG RUBBER COMPANY

Home Office, West Haven, Connecticut

GET READY FOR THE SPACE and SCIENCE ERA! SEE SATELLITES, MOON ROCKETS CLOSE-UP



AMAZING OPTICAL BUYS

and OTHER SCIENTIFIC BARGAINS



See the Stars, Moon, Planets Close Up!

3" ASTRONOMICAL REFLECTING TELESCOPE

60 to 160 Power—Famous Mt. Palomar Type! An Unusual Buy!



Assembled—Ready to use! You'll see the Rings of Saturn, the fascinating planet Mars, huge craters on the Moon, Star Clusters, Moons of Jupiter in detail. Galaxies! Equatorial mount with lock on both axes. Aluminized and over-coated 3" diameter high-speed f/10 mirror. Telescope comes equipped with a 60X eyepiece and a mounted Barlow Lens, giving you 60 to 160 power. Low-cost accessory eyepiece available for higher powers. An Optical Finder Telescope, always so essential, is also included. Sturdy, hardwood, portable tripod. FREE with Scope:

—Valuable **STAR CHART** plus 272 page "**HANDBOOK OF HEAVENS**" plus "**HOW TO USE YOUR TELESCOPE**" BOOK.
Stock No. 85,050-N.....\$29.95 postpaid

KNOW THE TRUTH ABOUT POWER. Telescope experts will confirm that an Astronomical Telescope will only give you practical powers to about 50 or 60 times per inch of objective diameter—powers above this only produce empty magnification—make viewing dim, difficult and unsatisfactory.

4 1/4" ASTRONOMICAL TELESCOPE!

UP TO 270 POWER!



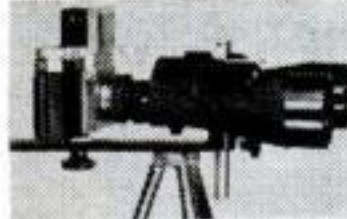
With this scope you can see everything as above but with greater power plus will split finer stars. Mirror has twice the light gathering power. Mirror guaranteed to give theoretical limit of resolution. Rack and pinion focusing, hardwood tripod, real equatorial mounting—only one adjustment follows stars! Aluminum tube. 6 power finder telescope, 2 standard size eyepieces and mounted Barlow lens give you powers of 40X, 90X, 120X, and 270X. Low-cost accessory eyepiece available for higher powers. FREE with Scope:—Valuable **STAR CHART** plus 272 page "**HANDBOOK OF HEAVENS**"

plus "**HOW TO USE YOUR TELESCOPE**" BOOK. Shipping weight 25 lbs. Stock No. 85,006-N.....\$74.50 f.o.b.

Same Telescope as above but equipped with Electric Clock Drive—Stock No. 85,094-N.....\$111.50 f.o.b. Barrington, N. J.

NEW BINOCULAR-TO-CAMERA HOLDER

For Exciting Telephoto Pictures



Bring distant objects 7 times nearer with a 35 mm. camera, 7x50 binocular and our NEW BINOCULAR-TO-CAMERA HOLDER. Ideal for long-range shots of wild life, planes, ships, people, etc. Camera and binoculars attach easily. Use any binocular or monocular—any camera, still or movie. Take color or black and white. Full directions for taking telephoto's.

Stock No. 70,223-N.....\$11.50 Postpaid

8 POWER ELBOW TELESCOPE

WAR SURPLUS

\$200 Gov't Cost—Only \$13.50

Big 2" objective, focusing eyepiece 28mm focal length—Amici erecting system—turret mounted filters, clear, red, amber and neutral—reticle illumination. Sparkling, clear, bright image—6° field (325 ft. at 1,000 yds.). Focus adjusts 15 ft. to infinity. 28mm f.1. eyepiece alone is worth more than \$12.50.

Stock No. 70,173-N.....\$13.50 Postpaid



Take Telephoto
Shots Thru

7x50 MONOCULAR

This is fine quality, American made instrument—war surplus! Actually 1 1/2 of U. S. Gov't. 7 x 50 Binocular. Used for general observation both day and night and to take fascinating telephoto shots with your camera. Brand new, \$95 value. Due to Japanese competition we close these out at a bargain price. Directions and mounting hints included.

Stock No. 50,003-N.....\$15.00 Postpaid



GIANT MAGNETS! TERRIFIC BARGAINS!

War Surplus—Alnico V type. Horseshoe shape. Tremendous lifting power. 5 lb. size. Dimensions: A—3 1/4"; B—2 1/4"; C—4 3/16"; D—1 1/4"; E—1 1/4"; F—2 1/4". Strength is about 2,000 Gauss. Will lift over 125 lbs.

Stock No. 70,183-N.....\$8.50 Postpaid

15 1/2 lb. size. Approximately 5,000-6,000 Gauss rating. Will lift over 250 lbs.

Stock No. 85,088-N.....\$22.50 F.O.B. Shipping wt. 22 lbs. Barrington, N. J.



ORDER BY STOCK NUMBER . . . SEND CHECK OR MONEY ORDER . . . SATISFACTION GUARANTEED!

EDMUND SCIENTIFIC CO. BARRINGTON, NEW JERSEY

SPECIAL! SPECIAL!

Terrific Buy! American Made!

OPAQUE PROJECTOR



Projects illustrations up to 3" x 3 1/2" and enlarges them to 4 ft. wide. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volt, A.C. current. 6-ft. extension cord and plug included. Operates on 60 watt bulb, not included.

Size 12" x 8" x 4 1/2" wide. Weight 1 lb., 2 oz. Plastic case with built-in handle.

Stock No. 70,199-N.....\$7.95 postpaid

ASTRO COMPASS AND STAR FINDER

Gov't. Cost \$75—Price \$14.95 Pstpd.

Determines position of stars quickly. Shows various celestial coordinates. An extremely useful star finder which can be rotated through 60° angles along calibrated degree scale. Has single eye lens with viewing stop, two spirit levels for aligning, tangent screw with scale for five precision readings, azimuth scale graduated in two-degree intervals, adjustable tilting azimuth scale for angle reference of stars on distant objects. War Surplus. Gov't. cost \$75. Instructions, carrying case included.



Stock No. 70,200-N.....Only \$14.95 postpaid



WAR SURPLUS!—INFRARED SNOOPERSCOPE

Gov't. Cost \$900—Bargain at \$39.50

Converts infrared to visible light. See in total darkness without being seen. Use in lab, factory, classroom, etc. Completely portable. Operates on two flashlight batteries (not included). Image is quite good, may be made even better by careful focusing. Size 11 1/2" x 8". Weight with carrying case 12 lbs. No infrared light source is furnished. (See below.)
Stock No. 85,098-N.....\$39.50 f.o.b. Barrington, N. J.

INFRARED LIGHT SOURCE AVAILABILITY!

You will need a 6-volt transformer or 6 V auto battery to operate.

Stock No. 80,035-N.....\$10.00 Pstpd.

NOTICE! EDMUND IS NOW HEADQUARTERS FOR MATH LEARNING AND TEACHING AIDS!



See Offering Below—Plus Dozens More in
FREE CATALOG 2

Play This New Game—**MATH MAGIC . . .**
The Fun-Way to Math Skill!

Educator-approved! 3 fascinating games in one! Great fun for the whole family. Increases skill at addition, subtraction, multiplication, division. Includes Dial and Spinner, Numbered Cards, Plastic Tokens, etc.—also rules and directions.
Stock No. 70,204-N.....\$3.00 Postpaid

FREE CATALOG-N

100 Pages! over 1000 Bargains!

America's No. 1 source of supply for experimenters, hobbyists. Complete line of Astronomical Telescope parts and assembled Telescope. Also huge selection of lenses, prisms, war surplus optical instruments, parts and accessories. Telescopes, microscopes, satellite scopes, binoculars, infrared sniperscopes, science experiment items, math learning and teaching aids.

REQUEST CATALOG-N



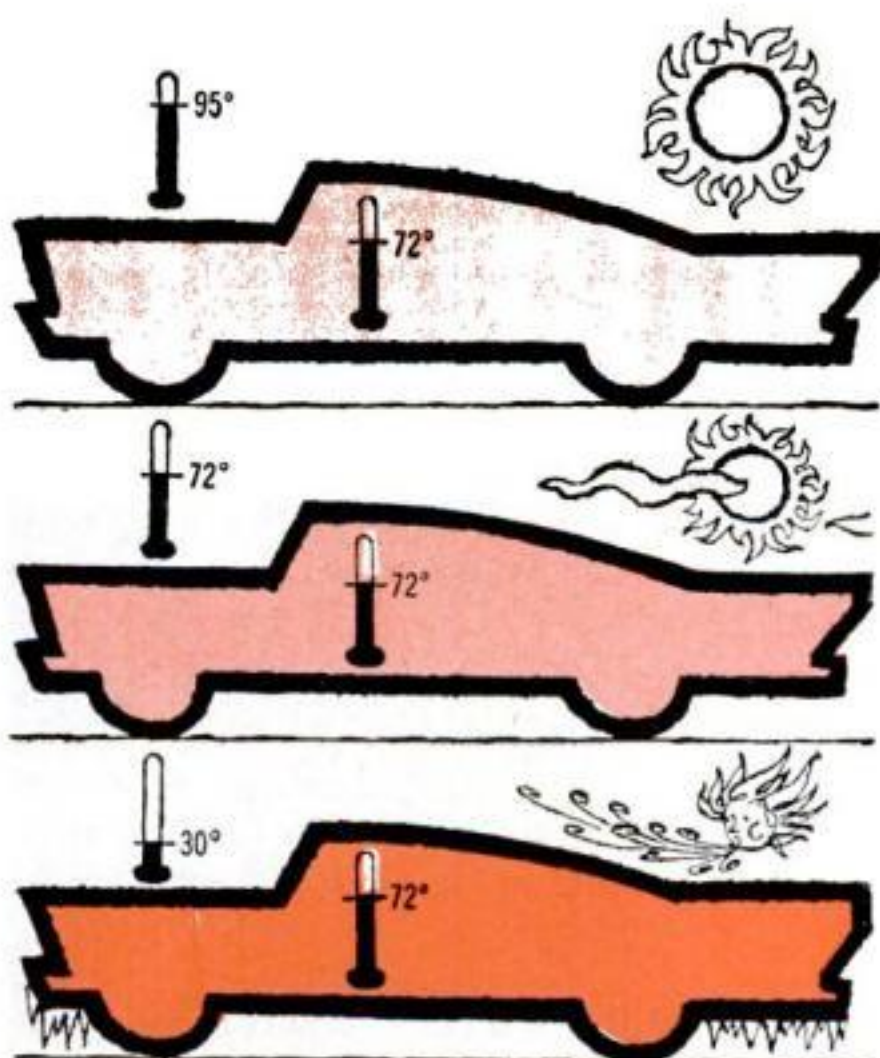
The month in science

Air conditioning in living color. What looks like a foolproof scheme for keeping things at a comfortable temperature—no moving parts, no electricity—is coming out of space research. The idea is to make a thing change color automatically: get darker and absorb more heat when it's cold, get lighter and reflect more heat when it's hot.

First trial of a coating that does this will be on satellite skins. But the same method should also provide color air conditioning for homes, cars, planes and even personal clothing. You might wear a

suit dyed to darken and lighten with changing temperature. Your car and the walls of your house might be painted in changeable color. Windows and sunglasses could even be made with built-in automatic blinds.

Paints that change color with heat have been used for a long time as rough thermometers—on railroad wheel bearings, for instance, to warn inspectors of trouble brewing. But these materials just indicate the temperature without attempting to control it. And using color to absorb or reject heat is an ancient idea—the white-painted roof, light clothes for the tropics, soot on an ice-covered walk. But these colors didn't adjust themselves; they worked only for particular temperature conditions.



Credit for combining the two ideas goes to Rudolf X. Meyer of Space Technology Laboratories (big operators in the missile and satellite business). He was nudged by the trouble that the Pioneer I space probe ran into last year. It had been painted (in unchanging color) to control the temperature of delicate instruments inside. Only it went off course, into a different temperature region, and some instruments failed.

So far Meyer has found 35 chameleon-like substances that change color back and forth as the temperature goes up and down. Some are paints, others are multi-layered plastics.

Flying on a bicycle built for two. An Irish aviation expert is out to succeed where Daedalus and Leonardo da Vinci failed: get men to fly on their muscle-power alone. T. R. F. Nonweiler plans to do it by adding glider wings, a tail-mounted propeller and assorted gearing to a tandem bicycle. The birdmen would run the machine by pedalling—first driving the wheels to takeoff speed—then pumping the propeller to fly (briefly).



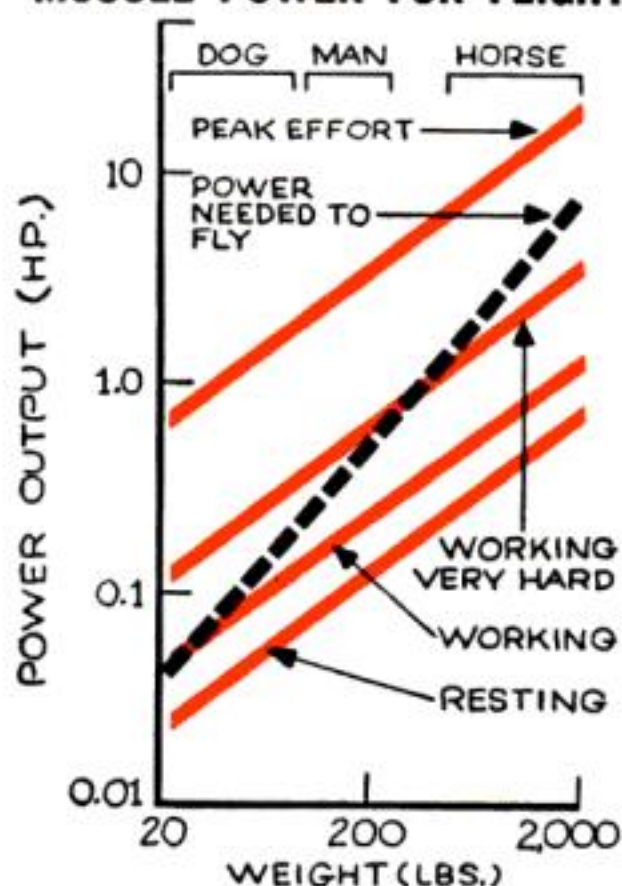
Theoretically it should be possible, a new study

CONTINUED

The month in science

by English physiologist D. R. Wilkie shows. Only small animals have the pounds-per-horsepower ratio to fly (the heaviest airborne bird is the great bustard, at 32 pounds). As animals' weights increase, their power output also goes up, but the

MUSCLE POWER FOR FLIGHT



power required for flight goes up faster yet (see graph). That's why a man—assuming nature had endowed him with wings at no increase in weight—still could not develop enough energy to fly steadily hour after hour, although he would be able to fly the way he runs, five to 30 minutes at a time. The added weight of artificial wings and hardware puts man-flight into the just-barely class. Then a man could generate the energy required only by an exhausting burst of effort that might keep him aloft a few minutes.

This figuring led Nonweiler to specify a bicycle built for two for his man-powered flying machine, two men doubling the power available without proportionately increasing the load. (He ruefully comments, "Three or more men seem somehow to invite derision, although it may well be true that an 'eight' is the optimum in flying as in rowing!")

The birdmen should be able to take off from the ground, fly for a minute and a half, and get as high as 25 feet on their muscle power alone. The time aloft could be doubled (three minutes) by using an extended takeoff run to store power in twisted rubber bands, but Nonweiler doesn't want to do that at first. Might seem like cheating.

Watch those rays! Some medical men still haven't gotten the word—at least when it comes to the dangers of radioactivity. They use X-ray machines without enough shielding, carelessly handle lethal materials such as radium.

In New York City, inspectors checked 1,200 X-ray machines in 100 hospitals, found that two out of three were spraying too much radiation around. During chest X rays, this faulty equipment irradiated the patients' sex organs 50 to 100 times more than necessary. (The big worry is this incidental radiation to the reproductive system, which can result in the birth of deformed or dead babies.) In Philadelphia, a survey found more than half the X-ray machines emitting excess radiation.

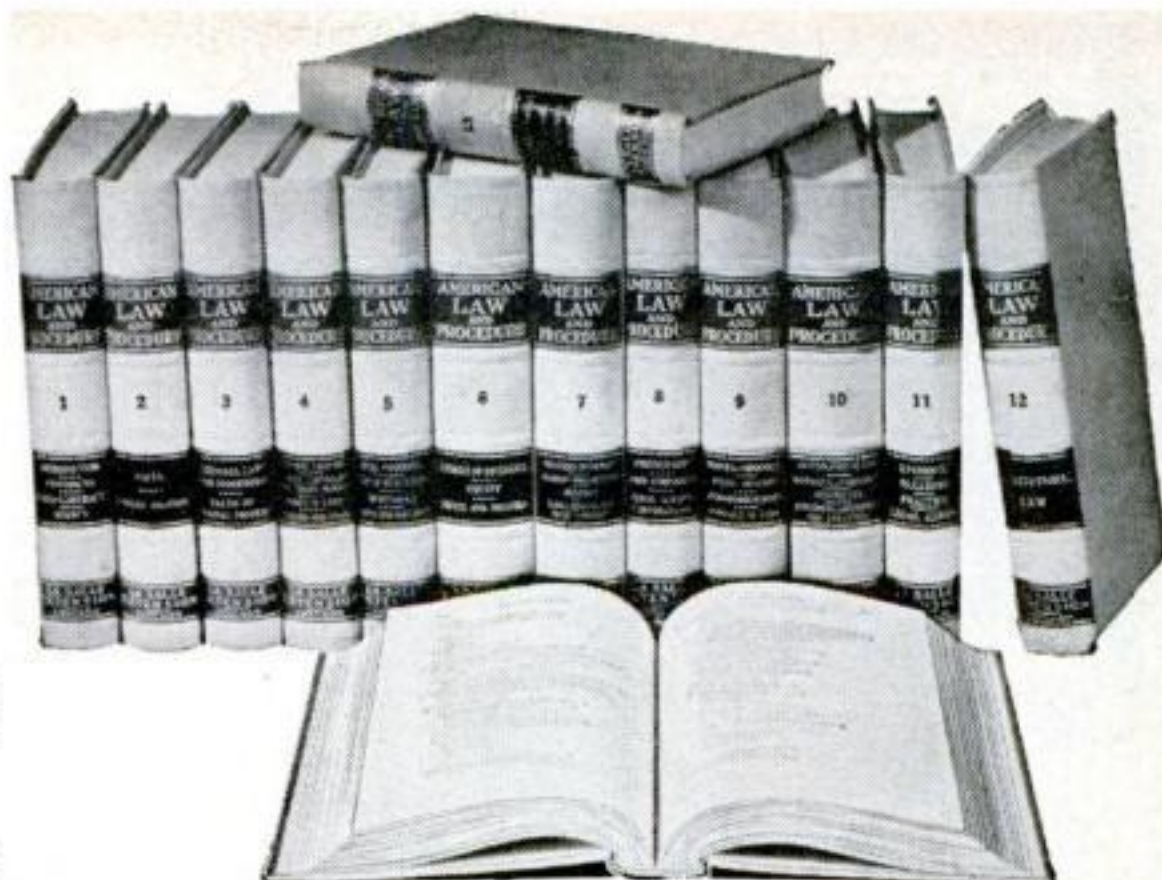
In Mexico City, carelessness on a really big scale turned up. For 15 years General Hospital stored a speck of radium inside an ordinary office safe, without the special shielding such deadly stuff requires. Last summer the entire two-story wing was found so hopelessly contaminated with dangerous radioactivity that it is being torn down and the debris buried.

Submarine automation. A 12-man crew would be enough for atomic subs (100 men are needed now) with a breadbox-size electronic computer the Navy is working on. It would give the skipper direct control over engine, weapons, communications, navigation.

LAW TRAINING *for* BUSINESS

[in spare time at home]

Earn LL.B. Degree



Thousands of men and women who never intend to practice are studying Law in spare time at home—not for a legal career but as an aid to business advancement.

Law today is involved in almost every major business decision. In many lines of work it is almost indispensable—credits and collections, accounting, traffic and transportation, employee relations, real estate, insurance, finance, taxation, etc. For all types of work, Law training develops keen, clear, quick, correct, and decisive thinking.

You can study LaSalle's American Law and Procedure right in the privacy of your own home—progressing as rapidly as your time and ability permit. LaSalle has, for over 50 years, helped more than 1,400,000 ambitious people get ahead in the business world. Thousands of letters in our files from grateful students and businessmen who have achieved greater success speak of—better jobs, more money and the satisfaction it brings, prestige and leadership.

A MOST UNUSUAL LAW LIBRARY

This training includes the fourteen-volume LaSalle Law library—AMERICAN LAW AND PROCEDURE, which is the basis of all the instruction service. This library has been compiled by leaders in the field of Law. It covers the whole basic field of Law in an orderly and simple manner that is easy to learn and understand. Collateral reading and printed lectures on legal problems which are furnished at regular intervals throughout the training, supplement the text. Law instructors personally supervise your program from the first assignment to the LL.B. degree or diploma. Under the LaSalle method you deal with legal problems—you learn by doing—actu-

ally solving legal problems—not just memorizing rules.

WRITE TODAY FOR TWO FREE BOOKS

You are determined to get ahead—to prepare for greater future possibilities—and to earn more money. Send the coupon below and find out how to qualify yourself for the many openings available to the Law-trained man. In our FREE books, "Law Training for Leadership" and "Evidence," you will find answers to all your questions about the study of Law and the LaSalle method.

No investment is likely to pay higher returns than an investment in yourself, by enrolling in the American Law and Procedure training. Send coupon today for full information—no obligation, of course.

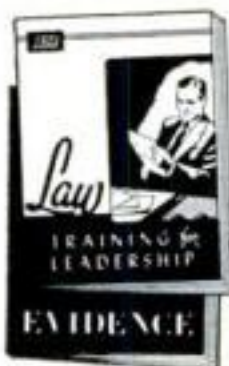
ACCREDITED MEMBER, NATIONAL HOME STUDY COUNCIL

LaSalle Extension University

A Correspondence Institution

Dept. 1083L 417 S. Dearborn St., Chicago 5, Ill.

Gentlemen: Please send me your two free booklets, "Law Training for Leadership" and "Evidence," which tell how I may study Law at home and qualify for the LL.B. degree.

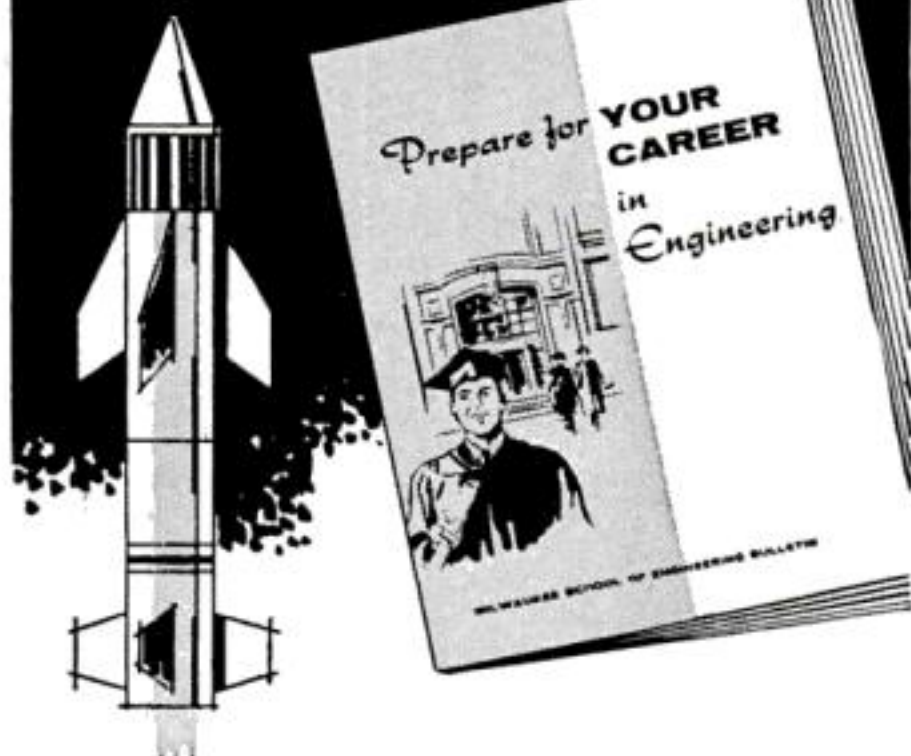


Name.....Age.....

Street.....

City.....Zone....State....

FREE CAREER BOOKLET



To guide you to a successful future in

METALLURGY MECHANICAL ENGINEERING AIR CONDITIONING INDUSTRIAL TECHNOLOGY

This interesting pictorial booklet tells you how you can prepare for a dynamic career as a Mechanical Engineer or Engineering Technician in such rewarding fields as:

**DEVELOPMENT • RESEARCH • SELLING
PRODUCT DESIGN • PURCHASING
QUALITY CONTROL • TIME STUDY**

Get all the facts about job opportunities, length of study, courses offered, degrees you can earn, scholarships, part-time work — as well as pictures of the Milwaukee School of Engineering's educational and recreational facilities. No obligation — it's yours free.

MILWAUKEE SCHOOL OF ENGINEERING

MAIL COUPON TODAY!

Milwaukee School of Engineering
Dept. PS-1059, 1025 N. Milwaukee St., Milwaukee, Wis.
Please send FREE "Your Career" booklet
I'm interested in ☐ Metallurgy ☐ Air Conditioning
☐ Industrial Engineering ☐ Mechanical Engineering
☐ Electrical Engineering.

Name _____ Age _____

PLEASE PRINT

Address _____

City _____ Zone _____ State _____

☐ I'm eligible for veterans education benefits.

Discharge date _____ MS-118

GRAVELY

makes leaves
VANISH!



ROTARY MOWER—LEAF MULCHER

- Mulches 30" width! . . . Twice the power of ordinary mulchers . . . gets rid of leaves *fast!* 6.6 HP at 2600 RPM.
- New Steering Sulky, New Optional Starter, New Rotary Cultivator — 30 attachments for year-round work. Snowblower, Snow Plow, Chain and Circular Saws for Fall and Winter jobs . . . Finance Plan available!

Write today for FREE 24-page "Power vs Drudgery" Booklet!



GRAVELY TRACTORS, INC.
BOX 602-K DUNBAR, W. VA.

FIELD-TESTED SINCE 1922

FREE!
100
WORLD-WIDE
STAMPS

...just released!

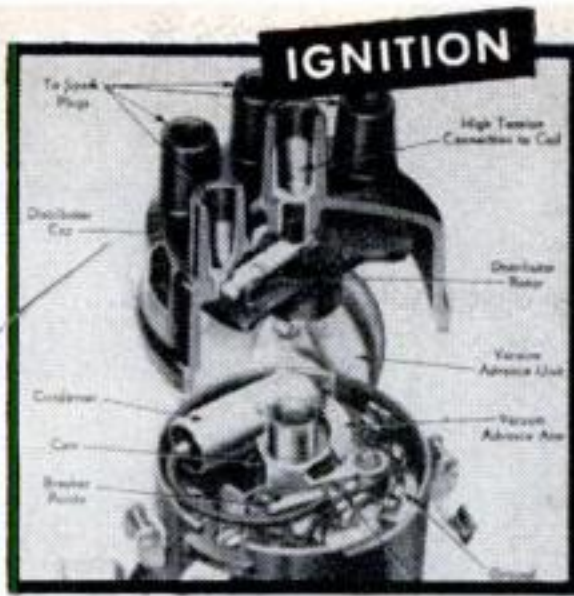


HURRY! SEND TODAY for colorful, valuable collection of 100 World-Wide stamps. Get new issues of past 12 months. From far corners of the world . . . Ghana, Togo, China, Polynesia, India, Australia, Honduras, Iceland and many others. Wonderful new additions to your collection. All different, all genuine, topicals, pictorials, bi-colors, mint and used. Limited supply. Only one to a collector. Plus free complete, helpful "Stamp Collector's Guide" and other offers for your FREE inspection. Send name, address, enclose 10¢ for handling and postage. Garcelon Stamp Company, Dept. PSOX, Calais, Maine

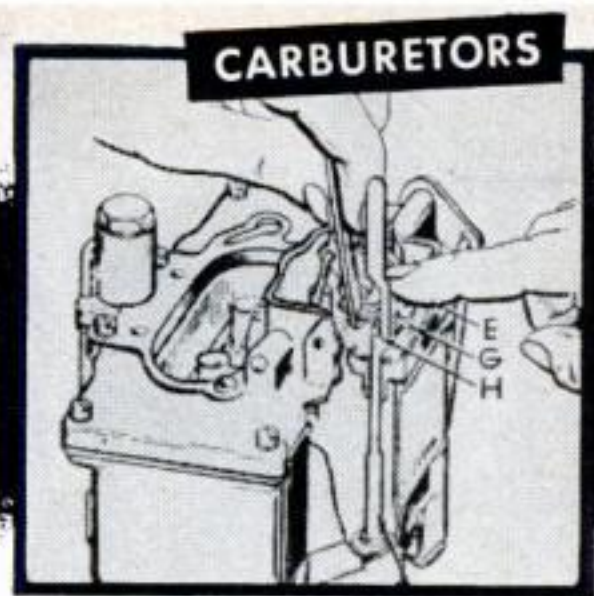
GARCELON STAMP CO., Dept. PSOX
Calais, Maine — Rush FREE 100 Different Stamps, Collector's Guide, other offers. Enclosed 10¢ for handling. (PLEASE PRINT).

COVERS ALL THESE MAKES
— ALL MODELS, 1952 THRU 1959

Buick	De Soto	Jeep	Plymouth
Cadillac	Dodge	Lincoln	Pontiac
Chevrolet	Edsel	Mercury	Rambler
Chrysler	Ford	Nash	Studebaker
Clipper	Hudson	Oldsmobile	Thunderbird
Continental	Imperial	Packard	Willys



Clear photos, cutaway drawings and diagrams, plus know-how directions make every part of any ignition system crystal-clear.



No more guesswork. You get illustrated, step-by-step procedures for all types of carburetors.

Let Factory Experts Show You HOW TO FIX ANY PART OF ANY CAR

3 MILLION
COPIES SOLD!
USED BY
U. S. ARMED
FORCES

This Famous "Auto Repair Bible" Turns Beginner Mechanics Into Experts—Saves Experts Time, Trouble, Money

SUPPOSE crews of trained factory experts were ready to guide your hands as you start to fix any part of any car. If they told you **EXACTLY WHAT TO DO**, couldn't you "wrap up" any repair job—quickly, easily, right? That's exactly the kind of expert guidance you get in **MOTOR'S** new **AUTO REPAIR MANUAL**!

YOU CAN'T GO WRONG!

With clear illustrations and step-by-step instructions, these experts show you how to "breeze through" any job on any car listed—1952 thru 1959. Even if you're a beginner, this famous Manual can show you how to fix cars the way the **EXPERTS** do. Tells you **WHERE** to start, what **TOOLS** to use, guides you every **STEP** of the way!

You get practical how-to-do-it procedures—worked out by **AUTOMOTIVE ENGINEERS**—from 176 official Shop Manuals, hundreds of factory bulletins, boiled down in simple, easy-to-follow language. 1,120 giant pages, 2,850 "This-is-How" pictures, 195 Quick-Check Charts — 30,000 essential repair specifications. Over 225,000 service and repair facts. Instructions and pictures are so clear you can't go wrong!

3 BOOKS IN 1

You actually get three complete "show-how" books in one giant handy, indexed volume:

1. Complete TROUBLE-SHOOTER SECTION spots more than 2,300 car troubles, helps you find the "bugs" fast.

2. HOW TO SERVICE, REPAIR ALL CAR PARTS—Transmissions, Air Suspension Systems, Rear Ends, Generators and Regulators, Fuel Pumps, Ignition Systems, Overdrives, Automatic Transmissions, Brakes, Rings, Water Pumps, Distributors, Dash Gauges, Power Steering, Power Brakes, etc., etc.

3. STEP-BY-STEP INSTRUCTIONS AND PICTURES on each specific car make and model—covers over 1,960 car models—1952 thru 1959.

PLUS Factory Specifications and Adjustment Tables, Tune-up Charts, Overhauling and Replacement facts—and **MUCH MORE!** Used by Armed Forces, hundreds of thousands of auto service men.

TRY BOOK FREE 7 DAYS

Send no money! Just mail coupon (paste it to a postal card for faster action). Use Manual for a week, *free*. Unless you agree that it is the greatest time and money-saver you've ever seen, return it in 7 days—and you won't owe a cent! Mail coupon today! Address: **MOTOR Book Dept., Desk 920, 250 West 55th St., New York 19, N. Y. (SCHOOLS, BOOKSTORES: Write for discounts.)**

FREE 7-DAY TRIAL
Return and Pay Nothing
If Not Delighted

MAIL COUPON NOW FOR 7-DAY FREE TRIAL
(Attach to postcard if more convenient)

MOTOR BOOK DEPT.

Desk 920, 250 W. 55th St., New York 19, N. Y.

Rush to me at once (check box opposite book you want!):

☐ **MOTOR'S New AUTO REPAIR MANUAL.** If O.K., I will remit \$2 in 7 days, \$2 monthly for 2 months and a final payment of \$1.95 (plus 45¢ delivery charges) one month after that. Otherwise I will return the book postpaid in 7 days. (Foreign price, remit \$10 cash with order.)

☐ **MOTOR'S New TRUCK REPAIR MANUAL.** If O.K., I will remit \$3 in 7 days, and \$2 monthly for 3 months, plus 45¢ delivery charges with final payment. Otherwise I will return book postpaid in 7 days. (Foreign price, remit \$11 cash with order.)

Print Name Age.....

Address.....

City..... Zone..... State.....

☐ Check box and save 45¢ shipping charge by enclosing **WITH** coupon in envelope entire payment of \$7.95 for Auto Repair Manual (or \$9 for Truck Repair Manual). Same 7-day return-refund privilege applies.

Same FREE 7-Day Offer on MOTOR'S Brand-New TRUCK REPAIR MANUAL

Covers **EVERY** job on **EVERY** gasoline-powered truck made since 1933—PLUS GM, Mack and Cummins Diesels. Over 2,000 illustrations; over 300,000 facts. Check proper box in coupon for **FREE 7-DAY TRIAL**.



Amazed Self and Friends—
"I amazed myself and my friends, too. Now do jobs that stumped me before."—Michael Baliczky, Newark, N. J.

So Complete and Easy to Understand — "So complete, easy to understand—have done jobs with Manual I would not have attempted without it."—C. L. Vanerstrom, Mich.



These great minds were Rosicrucians . . .



Francis Bacon Benjamin Franklin Isaac Newton

WHAT SECRET POWER DID THEY POSSESS?

Why were these men great?

How does anyone—man or woman—achieve greatness? Is it not by mastery of the powers within ourselves?

Know the mysterious world within you! Attune yourself to the wisdom of the ages! Grasp the inner power of your mind! Learn the secrets of a full and peaceful life!

Benjamin Franklin, statesman and inventor . . . Isaac Newton, discoverer of the Law of Gravitation . . . Francis Bacon, philosopher and scientist . . . like many other learned and great men and women . . . were Rosicrucians. The Rosicrucians (NOT a religious organization) have been in existence for centuries. Today, headquarters of the Rosicrucians send over seven million pieces of mail annually to all parts of the world. Address: Scribe L. H. E.

THIS BOOK FREE



The ROSICRUCIANS

San Jose (AMORC) California, U.S.A.

SEND THIS COUPON

Scribe L. H. E.

The ROSICRUCIANS
(AMORC)

San Jose, California, U.S.A.

Please send me the free book, *The Mastery of Life*, which explains how I may learn to use my faculties and powers of mind.

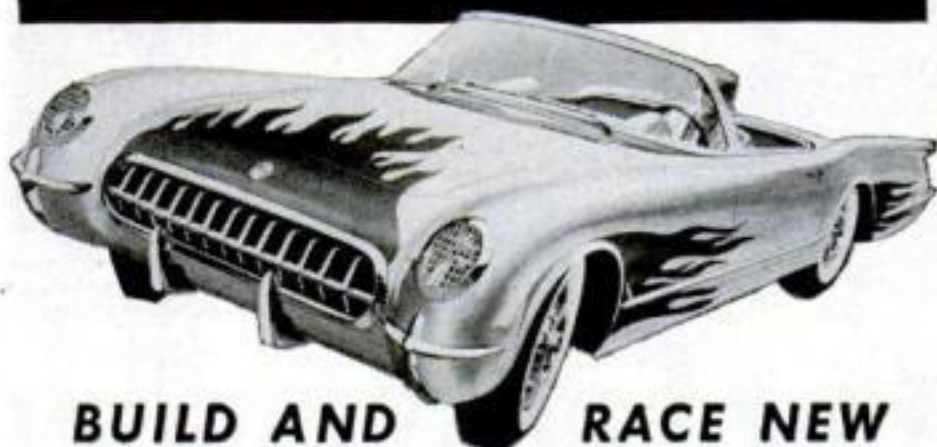
Name _____

Address _____

City _____

State _____

MOTORIZED CUSTOMIZED CORVETTE KIT



BUILD AND RACE NEW ITC PLASTIC SPORTS CAR

Super-size 16" plastic sports car has electric headlights, runs forward and reverse on powerful battery motor. Customized in color, fitted with Rayco seat covers, mufflers and floor mats. Get yours today!

**ONLY \$5.00 AT HOBBY
AND TOY COUNTERS**

ITC MODEL CRAFT
200 Fifth Ave., New York 10, N. Y.



new FROM HEATHKIT® transistor clock radio



**EASY TO ASSEMBLE . . . COMPLETELY PORTABLE
. . . UP TO 500 HOURS ON BATTERIES**

Take it with you . . . on trips, to the beach, in a boat . . . Nothing to plug-in, just goes and goes on inexpensive batteries. Lulls you to sleep, wakes you up, tells time and plays all day long. Leather carrying case available. **ONLY \$45.95.**



HEATH COMPANY

Benton Harbor 16, Michigan

a subsidiary of Daystrom, Inc.

Send the latest Free Heathkit Catalog.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Note: Price subject to change without notice.

CHOOSE THE PROFESSION WITH A FUTURE... LEARN

DRAFTING

AT HOME... QUICKLY... EASILY... IN SPARE TIME...

JOIN THE SPACE AGE ENGINEERING TEAM!

You, too, can become a key man on the modern engineering team. The draftsman is the vital communication link between engineers and technicians. All commercial projects start on the draftsman's drawing board!

HERE IS YOUR CHANCE! No matter where you live... no matter what your present job is... you too, like many of today's industrial leaders, can use drafting as your springboard to success. Never before has there been such a demand and respect for skilled draftsmen. No profession has a brighter future! Draftsmen get top pay... are in line for promotion to executive positions.

NO EXPERIENCE NEEDED. C.E.I.'s modern drafting courses are the finest, practical, thorough home study training available. They are fully illustrated, prepared especially for Home Study.

EARN WHILE YOU LEARN! Keep your present job while learning drafting at home in spare time. Many students, as they advance in their C.E.I. course, use their drafting skill to increase their present income.

ACT NOW! INSURE YOUR FUTURE! C.E.I.'s faculty of licensed engineers and registered architects will guide you each step of the way. Find out how a C.E.I. Diploma can open doors for you... bring you a richer life... greater security... big pay... the respect of your employer and people in your community. **MAIL THE COUPON NOW!**

COMPLETE
EQUIPMENT
FREE OF
EXTRA COST

VETERAN APPROVED!

free

LESSON
AND
SUCCESS
BOOK

Approved Ohio State
Dept. of Education



**CLEVELAND
ENGINEERING INSTITUTE**
ENGINEERING DRAFTING EXCLUSIVELY



You Too, Can Have:

- MORE MONEY
- PROFESSIONAL RATING
- BIG PAY JOBS
- BRIGHT FUTURE
- JOB SECURITY
- SUCCESS

C.E.I.'s Drafting Course has helped me in many ways: It has raised my education rating and technical classification and has boosted my income.

J. F. Balschun, Canal Zone



C.E.I.'s Home Study Course made it possible for me to secure valuable training while keeping my full time job to meet living expenses. C.E.I. training made my present job possible and doubled my pay.

Wm. M. Willis, Iowa

I advise everyone interested in the highly specialized field of drafting to start your top caliber course at once! C.E.I.'s course has increased my income 92%. The ceiling of the salary and position of experienced draftsmen is unlimited.

Paul W. Marrone, Fla.



Your course has made my present position possible. It has also enabled me to study engineering in college evening courses. My C.E.I. diploma was accepted in place of high school credits which I lacked.

J. Jakubowski, Michigan

These are only a few of hundreds of letters of appreciation in C.E.I.'s files

MAIL COUPON NOW!

CLEVELAND ENGINEERING INST. DEPT. PS-10J
6300 Euclid Ave. Cleveland 3, Ohio

☐ Mechanical ☐ Aeronautical ☐ Architectural

MY NAME AGE.....

ADDRESS

CITY STATE.....

No Obligation — No Salesmen A-2327

EXAMINE FREE! AUDELS DO-IT-YOURSELF ENCYCLOPEDIA

JUST OFF THE PRESS!
NOW, AT LAST—AN AUTHENTIC GUIDE TO HOME IMPROVEMENT AND REPAIR!

FAMOUS AUDELS, the world's greatest publisher of mechanical books since 1879, has now utilized all its knowledge... all its great fund of inside trade information... to produce the greatest, most complete, easiest-to-use DO-IT-YOURSELF ENCYCLOPEDIA ever offered for American family use.

SAVE HUNDREDS OF DOLLARS EVERY YEAR!

With this remarkable, easy-to-use, set you can save a small fortune every year for home improvements and repairs.

- Over 1,000 Pages
- Set Weights 4 Pounds
- Each Volume 6 x 9 x 2
- Step-By-Step Plans
- Thousands of Photos
- Helpful Charts



EVERYTHING YOU NEED TO KNOW

INSIDE THE HOUSE... OUTSIDE THE HOUSE... AROUND THE HOUSE		
A Partial List of Contents:		
Air conditioning	Doors	Kitchen layouts
Asphalt tiles	Electric wiring	Lawn grass guide
Attics	Fireplaces	Lawn mower
Basements	Flagstone tiles	Lighting fixtures
Book rack	Floor repairs	Locks
Built-ins	Furniture finishing	Lumber
Ceilings	Glazing windows	Marble tile
Cement	High Fidelity	Masonry
Concrete	Insulation	Miter joint
Cornice, window		

THOUSANDS OF OTHER IMPORTANT SUBJECTS

MAIL THIS COUPON TODAY!

THEO. AUDEL & CO. — Self Improvement Publishers Since 1879 S10A
49 W. 23rd Street, New York 10, N.Y.

Please mail me for 7 days FREE EXAMINATION my set of AUDELS DO-IT-YOURSELF ENCYCLOPEDIA. If I decide to keep the set I will send you \$3 in 7 days and then \$3 a month until I have paid the full purchase price of \$8.95 plus shipping costs. Otherwise I will return the set to you and owe nothing.

NAME _____

ADDRESS _____

OCCUPATION _____

EMPLOYED BY _____

☐ **SAVE SHIPPING COSTS!** Check here if you enclose complete payment with order. We pay postage charges. You have same return privilege.

AUDELS GUIDES

No. 1	AUTOMOBILE MECHANICS GUIDE. 1696 Pages.....	\$ 6.00
No. 2	HOME APPLIANCE SERVICE GUIDE. 864 Pages.....	6.00
No. 3	TV & RADIO SERVICE LIBRARY. 2 Book Set.....	8.00
No. 4	HANDY BOOK OF ELECTRICITY 1520 Pages.....	5.00
No. 6	PLUMBERS & STEAMFITTERS GUIDES. 4 Book Set.....	8.00
No. 8	CARPENTERS & BUILDERS GUIDES. 4 Book Set.....	8.00
No. 9	DIESEL ENGINE MANUAL. 640 Pages.....	3.00
No. 10	WELDERS GUIDE. 608 Pages.....	3.00
No. 11	MATHEMATICS MADE EASY. 752 Pages.....	3.00
No. 12	MACHINISTS & TOOLMAKERS HANDBOOK. 1728 Pgs.....	6.00
No. 13	WIRING DIAGRAMS. 304 Pages.....	2.00
No. 14	REFRIGERATION & AIR CONDITIONING. 1360 Pages.....	6.00
No. 15	ELECTRIC LIBRARY. 10 Volume Set.....	20.00
No. 25	BLUE PRINT READING. 448 Pages.....	3.00
No. 26	MASONS & BUILDERS GUIDES. 4 Book Set.....	8.00
No. 27	ELECTRIC MOTOR GUIDE. 1056 Pages.....	5.00
No. 28	OIL BURNER GUIDE. 416 Pages.....	2.00
No. 29	SHEET METAL PATTERN LAYOUTS. 1152 Pages.....	7.50
No. 30	SHEET METAL WORKERS HANDY BOOK. 448 Pages.....	2.00

7-DAY FREE EXAMINATION

SEND NO MONEY—Pay the postman nothing! We'll send you any of the Audel Guides for FREE examination in your home. If you decide to keep the books you may pay for them under our easy-pay plan of only \$2 a month.

HERE IS ALL YOU DO

IT'S EASY TO ORDER: In the No-Risk Mail Order Coupon below you need only draw a circle around the number of Audel Guides you want. We will send them to you at once. If you are not completely satisfied, return the books to us.

COMPLETE CATALOG SENT FREE! CHECK BELOW

MAIL THIS COUPON TODAY!

THEO. AUDEL & CO. — Self Improvement Publishers Since 1879 S10
49 W. 23rd Street, New York 10, N.Y.

Please mail me for 7 days' FREE EXAMINATION the books I have circled. I agree to mail \$2 in 7 days on each book or set ordered, and to further mail \$2 a month on each book or set ordered until I have paid the purchase price, plus shipping costs. If I am not completely satisfied with my Audel Guides I may return them.

NAME _____

ADDRESS _____

OCCUPATION _____

EMPLOYED BY _____

1 2 3 4 6 8 9 10 11 12 ☐ Check Here for Free Complete Catalog
13 14 15 25 26 27 28 29 30

☐ **SAVE SHIPPING COSTS!** Check here if you enclose complete payment with order. We pay postage charges. You have same return privilege.

NOW! a hi-compression staple gun for only \$4.95



With Exclusive Push-button Loading and Built-In Staple Extractor.

Indispensable for home use...and never before priced so low! This compact, all steel, powerful SWINGLINE 101 staple gun is ideal for insulation, carpentry, upholstery, screening, wire fencing, plus thousands of other uses. Handle locks to fit pocket. Lightweight, maneuverable, jam-proof! Staple sizes 1/4", 5/16". Send for FREE book—"Tips for Tacking".

Swingline® INC.

Dept. S-10-9 Long Island City 1, New York

NO JOB WORRIES

PLASTEX INDUSTRY needs manufacturers on small scale for big production of Lamps, Clock Stands, Art Goods, Novelties in Plastic Marble imitation. No Experience necessary. 1/2c material makes regular 10c store sellers. Moulds furnished for fast production. Small investment brings good profit. Big wholesale orders now being placed. Ambitious men have chance for real prosperity and job security. Our NEW FREE booklet will interest and benefit you. PLASTEX INDUSTRIES, Dept. 2, 3400 Third Ave., New York 56, N.Y.

OWN • WEAR • ENJOY

Genuine DIAMONDS

For As Little As \$16.00 DOWN



SEND FOR FREE DIAMOND BUYING GUIDE

YOUR credit is good at Kaskel's, America's Oldest Diamond Discount House serving over 1,000,000 satisfied customers since 1882. Select from hundreds of styles. Bargain prices defy competition. Only 10% down. Illustrated Guide explains Standard Diamond Grading System and Bonded Guarantee that protects you 100%. Send for FREE Buying Guide today. No obligation.

KASKEL'S • 41 W. 57th St., Dept. 908K, New York 19, N. Y.
Send Free Buying Guide and advice about diamonds, also details of easy payment plan.

Name.....

Address.....

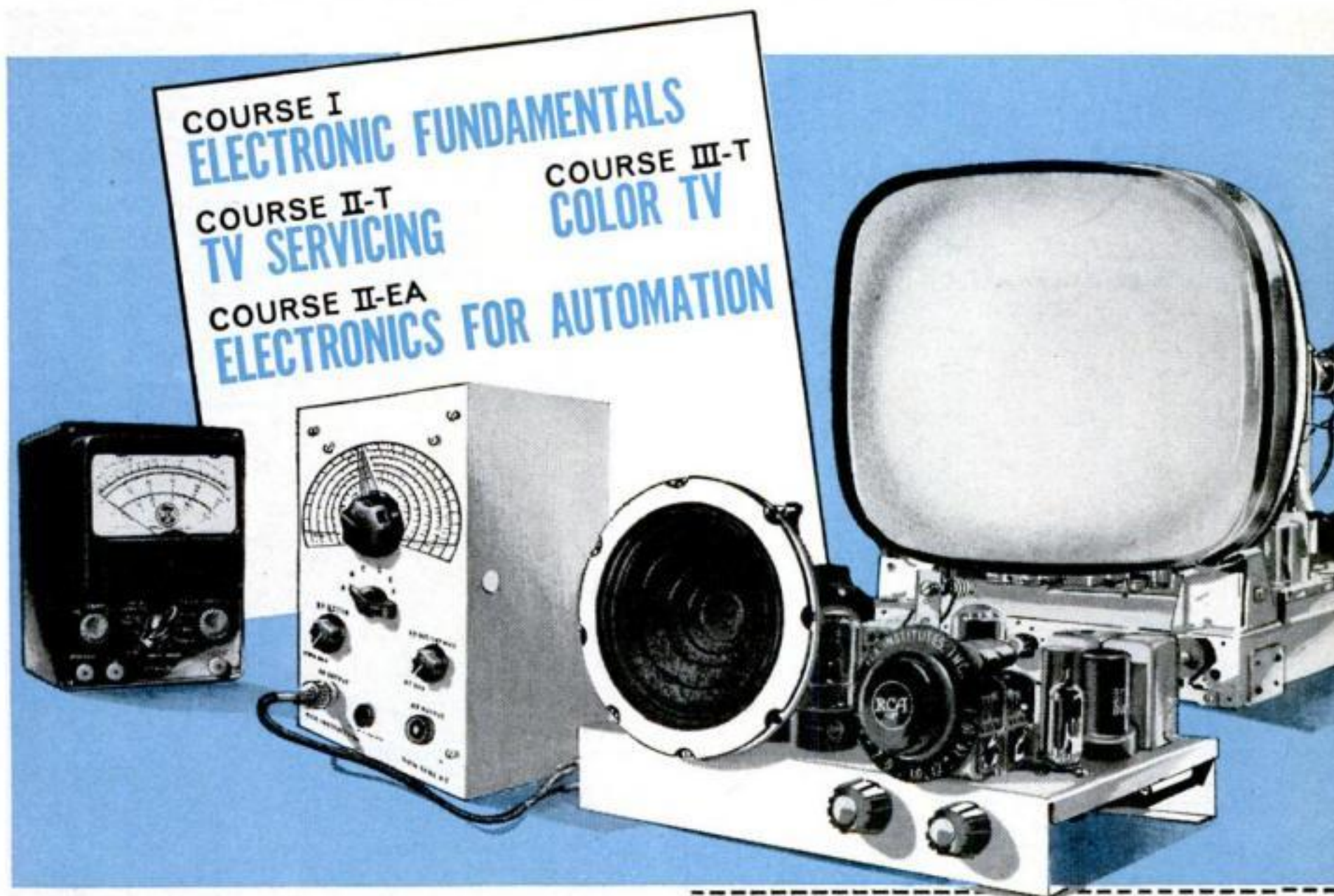
City & State.....



RCA INSTITUTES



OFFERS YOU THE FINEST OF HOME STUDY TRAINING



The equipment illustrated and text material you get with each course is yours to keep. Practical work with very first lesson. Courses for the beginner and the advanced student. Pay-as-you-learn. You need pay for only one study group at a time.



**SEND FOR THIS
FREE BOOK NOW**

Resident School courses in New York City offer comprehensive training in Television and Electronics. Day and evening classes start four times each year. Detailed information on request.

ANOTHER WAY RCA SERVES
EDUCATION THROUGH ELECTRONICS

RCA INSTITUTES, Inc. Home Study School ^{2PS-109}

A Service of Radio Corporation of America

350 West Fourth Street, New York 14, N. Y.

Without obligation, send me **FREE 64-page CATALOG** on Home Study Courses. No salesman will call.

Name.....
Please print

Address.....

City.....Zone....State.....

Korean Vets! Enter discharge date.....

CANADIANS —Take advantage of these same RCA courses at no additional cost. No postage, no customs, no delay. Send coupon to:

RCA VICTOR COMPANY, LTD.
5001 Cote de Liesse Rd., Montreal 9, Que.

To save time, paste coupon on postcard



Easy as A-B-C



Be Your Own MUSIC Teacher

PLAY ANY INSTRUMENT

**LEARN AT HOME THIS QUICK,
SIMPLE, MONEY-SAVING WAY**



SIMPLE as A-B-C. Your lessons consist of real selections, instead of tiresome exercises. You read real notes—no “numbers” or trick music. Some of our 1,000,000 students, such as Lawrence Welk, are band LEADERS. Everything is in print and pictures. First you are told what to do. Then a picture shows you how. Then you play it yourself and hear how it sounds. Soon you are playing popular tunes, hymns, classical and any other music.

No special talent or previous training needed. Even if you don't know a single note of music now, you can soon play piano, guitar, accordion, organ, any instrument. Your friends will be amazed!

STOP CHEATING YOURSELF OF THESE JOYS!

Popularity! New friends. Gay parties. Good times. Career. Extra Money. Understand, appreciate and converse about music. Learn lives and compositions of modern and great masters . . . Relax! Banish worries and frustrations. Satisfy self-expression, creative urge. Gain self-confidence.

MAIL COUPON FOR FREE BOOK

See for yourself why our method has been successful for

61 years! Read the whole fascinating story of this wonderful method in 36-page illustrated book. For FREE copy, mail coupon. No obligation. No salesman will call. **U. S. School of Music, Studio A1510, Port Washington, N. Y.**



U. S. SCHOOL OF MUSIC
Studio A-1510, Port Washington, N. Y.

Please send me your 36-page illustrated Free Book. I'm interested in playing (name instrument).....

☐ I do ☐ I do NOT—have instrument now.

Name.....Age.....
(please print)

Address.....

City.....Zone.....State.....

**NEW! EUROPEAN AIR RIFLE
with RIFLED BARREL!**

**ACCURATE, SILENT
POWERFUL!**



**"The
EMPIRE"
AIR RIFLE**

**only
\$9.95**

- Precision Built
- Adjustable rear sight
- .177 Rifled Barrel
- Extra Hitting Power
- Perfect for small Game or Target Practice

Developed in one of Europe's great firearms factories, this is a quality, precision-made rifle—perfect for target practice and small game. Shoots tight group that will test your marksmanship. Yet ammunition is so cheap you can shoot for hours for only pennies. No expensive gas cylinders needed. No pumping. “Empire's” action opens like expensive English double rifles. Opening action cocks powerful air compressor piston. You insert pellet, snap closed and you are ready for a high-powered, silent shot. All-steel parts. Hardwood stock. Only \$9.95 plus \$1 for shipping and handling. Pellets \$3.98 per thousand. Darts 72 for \$2.69. Money-back guarantee of quality and performance. Not sold to minors or in N. Y. C. **EMPIRE MDSG. CO., Dept. AP-109, 4 N. 3rd Ave., Mt. Vernon, N. Y.**

LEARN WHILE YOU SLEEP!



Experiment in this fascinating, educational new field. Use your phono, recorder or amazing new “Electronic Educator” endless tape recorder. Free catalog lists over 200 unusual tapes, records, equipment for sleep-learning & hypnosis experimenters. **Sleep-Learning Research Ass'n., Box 24-K, Olympia, Wash.**

75 POWER TELESCOPE \$3.98
25X-45X-75X

New 3 in one telescopes, 3 variable 25X-45X-75X magnification. Brass bound. 25 power for ultra bright images 45 & 75 power for long range. Guaranteed to bring distant stars, moons, objects, sports 75 times closer.



CRITERION CO., Dept. PSB-76, 331 Church St., Hartford, Conn.

**Want BIG PAY—
Your Own Business?**

**Be a
LOCKSMITH**



You can quickly step into a well-paid job or start a big-profit business of your own. Shortage of locksmiths means opportunities everywhere, spare-time or full-time.

EARN EXTRA MONEY FROM THE START!
All Special Tools, Supplies Furnished Free

Age, education, minor physical handicaps don't matter in this growing, steady-income trade. You learn fast at home—gain practical experience through well-illustrated lessons. You do real jobs under the personal guidance of experts. Only school of its kind. Licensed State of N. J.; Accredited Nat'l. Home Study Council.

For a future as your own boss, or in a big pay job, send for FREE illustrated book. Mail coupon at once. No salesman will call. **Approved for Veterans.** Locksmithing Institute, Dept. 210-9, 150 Park Ave., E. Rutherford, N. J.



Locksmith Inst., Dept. 210-9, 150 Park Ave., E. Rutherford, N. J.
Please send FREE and without obligation illustrated book.

Name.....
Address.....
City.....Zone.....State.....



DON'T BE HALF-TRAINED... BE A MASTER TECHNICIAN

- A Master Technician makes more money!
- A Master Technician is always in demand!
- A Master Technician has lifetime security!
- A Master Technician can be his own boss!

*Registration Applied For

FREE
BIG ILLUSTRATED
BOOK
GIVES YOU ALL
THE FACTS

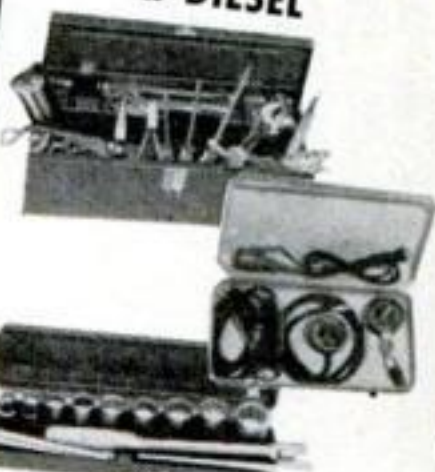
MAKE BIG MONEY

TRAIN AT HOME
for one of
AMERICA'S
"Big 3"
OPPORTUNITY
FIELDS!

TELEVISION RADIO-ELECTRONICS



AUTO MECHANICS & DIESEL



AIR CONDITIONING REFRIGERATION & ELECTRICAL APPLIANCES



SEND FOR YOUR
FREE
OPPORTUNITY BOOK
AND ACTUAL LESSON
NOW!!!

INFORMATION
WILL BE MAILED...
NO SALESMAN WILL CALL!

EVERY ONE OF THE "BIG 3" INDUSTRIES

TV-Radio-Electronics . . . Auto Mechanics & Diesel . . . Air Conditioning-Refrigeration-Electrical Appliances . . . all are growing at a tremendous pace. No wonder you have steady work, at high pay, year after year, when you are a Master Technician in any one of these "Big 3" fields. You can really go places in your own business or with a manufacturer, dealer or distributor.

YOU ARE NEEDED . . .

to help service, maintain and repair the millions of TV sets, radios and electronic units . . . cars, trucks and diesel engines . . . air conditioners, household and commercial refrigerators, electrical appliances, etc., now in operation, plus the millions more that are being manufactured each year.

N.T.S. Trains You RIGHT, FAST and EASY!

Incomplete, "Short-cut" training limits your earning power, even disqualifies you for top-pay jobs. N.T.S. gives you All-Phase, complete training . . . to qualify you for any job in your field, for greater profits all-year round.

EARN AS YOU LEARN

We'll show you how you can earn money right from the start. Many students pay for their courses—and earn much more—while studying. So can you!

Your N.T.S. Training is BETTER... MORE COMPLETE...LOWER COST!

BETTER . . . proved and tested in Resident School shops and labs, by the OLDEST and LARGEST School of its kind in the world. Est. in 1905.

MORE COMPLETE . . . You learn All Phases, and you receive EVERYTHING YOU NEED — Lessons, Manuals, Diagrams, many Big Professional Kits with parts, tools, instruments for your experimental, repair and service, and trouble-shooting job projects. You also receive many valuable training "Extras" to assure your success.

LOWER COST . . . Other schools make several courses out of the material in each one of our MASTER COURSES . . . and charge you more for less training than you get in any one of our "Big 3" at ONE LOW TUITION!

GET THE BENEFIT OF OUR OVER 50 YEARS EXPERIENCE

Choose YOUR Field! Select one of
the "Big 3" NOW!

RESIDENT TRAINING AT LOS ANGELES
If you wish to take your training in our Resident School at Los Angeles, start NOW in our big, modern Shops and Labs. Here you work with latest equipment, professionally installed . . . finest most complete facilities offered by any school. Expert, friendly instructors. Personal attention. Graduate Advisory Service. Help in finding home near school . . . and part time job while you learn. Check box in coupon for full information.



NATIONAL TECHNICAL SCHOOLS

WORLD-WIDE TRAINING SINCE 1905

MAIL NOW TO

National Technical Schools, Dept. C-109
4000 S. Figueroa St., Los Angeles 37, Calif.
Please rush FREE Book and Actual Lesson checked below. No obligation. No salesman will call.

(CHECK ONE ONLY)

- ☐ "My Future in TV-Radio-Electronics" Book
☐ "My Future in Auto-Mechanics & Diesel" Book
☐ "My Future in Air Conditioning, Refrigeration & Electrical Appliance" Book

Name _____ Age _____
Address _____
City _____ Zone _____ State _____

☐ Check here if interested ONLY in Resident Training at Los Angeles.
VETERANS: Give date of discharge _____



**MEN! Make up to
\$1,000⁰⁰
IN A MONTH!**

without "SELLING"

Sensational Demand for Low-Priced Fire Alarm PLUS Sure-Fire "No-Selling" Plan Offers Ambitious Men Huge Profit Opportunities

AMAZING NEW INVENTION



Even beginners who never sold anything in their lives are cleaning up unbelievable profits with the first practical effective, low priced Fire Alarm ever invented . . . needed, wanted in homes, factories, offices, stores, on farms, for boats, everywhere. Professional salesmen are making biggest profits in years! Later in this ad I'll tell you about the plan that's producing orders for 1 to 12 Fire Alarms per sale from 8 out of 10 prospects . . . without selling. Here are the facts about the Fire Alarm. It hangs on the wall like a picture—no wiring, no installation. It's always on guard . . . It 'smells' a fire before danger point. When temperature rises, Fire Alarm goes off automatically howls loud warning that can be heard 1/5 mile wakes up soundest sleeper, give precious time to put out fire, call fire department, or escape. And it sells for only \$4.95 with profit up to \$2.70 on each one.

**Nearest Thing to
AUTOMATION SELLING**

With our field-tested plan customers sell themselves. No cold canvassing. No hard selling. It's the nearest thing to 'Automation Selling.' Imagine a sales plan even a child can use successfully because the sales tools we give you (and which you leave with your prospects) do all your selling even while you sleep! No room here to give you all the details but if you want big money fast rush the coupon now.

**Make This
Lighted-Match
Demonstration**

Sensitive! Lighted match triggers Alarms in 3 seconds.

\$1,080.00 profit in a month. No competition anywhere. Get in on the ground floor now! Rush this coupon.

MERLITE INDUSTRIES, Inc.
(ALARM DIVISION)

114 E. 32nd St., Dept. F-16E

New York 16, N. Y.

ALVIN WESLEY, Sales Manager
Merlite Industries, Inc. (Alarm Division)
114 E. 32nd St., Dept. F-16E, New York 16, N. Y.

Rush FREE SALES KIT and full details about your "No-Selling" plan which gives me opportunity to make up to \$1,000.00 in a month without cold canvassing and hard selling—automatically. I am not obligated.

Name _____

Address _____

City _____ Zone _____ State _____

In Canada: Mopa Co., Ltd., 371 Dowd St., Montreal 1, P.Q.

**Made \$26.52
in 3 Hours!**
"Received first shipment about noon. Worked 3 hours and made \$26.52 profit. It's a terrific seller!"
—Stanley



Free Sales Kit

Send no money. Just rush coupon below for all the exciting moneymaking facts, complete Illustrated Sales Kit, everything you need to make money your first day. Learn how selling only 20 Fire Alarms a day pays you



**NEW
.22
6-SHOT
REVOLVER
\$12.95**

Fires both .22 short & long ammo. This sensational NEW 6-shot Rosco Vest Pocket .22 revolver is a tremendous value at 3 times its price. Made in W. Germany, it is a tight, well-made, exceedingly accurate handgun. Fires easy-to-get Win., Rem. Western & Peters .22 Long & Short ammo. Features side gate loading, trigger adjustment, screw-in ejector rod. Has STEEL RIFLED BARREL with blade front sights. Easy and fun to shoot. Terrific for target shooting, varmint hunting or as a home defense weapon. Only \$12.95. Leather holster \$2.25. 100 rds. of .22 short ball ammo only \$1. Shipped F.O.B., Los Angeles express charges collect. Send cash, check or M.O. COD's require \$7.50 deposit. Satisfaction guaranteed. Purchasers must be 18 years old. Res. of L. A. & vicinity, please purchase at our store.

SEAPORT TRADERS, INC., Dept. PS-10
1221 S. Grand Ave. Los Angeles 15, Calif.

**Now Many Wear
FALSE TEETH
With Little Worry**

Eat, talk, laugh or sneeze without fear of insecure false teeth dropping, slipping or wobbling. FASTEETH holds plates firmer and more comfortably. This pleasant powder has no gummy, gooey, pasty taste or feeling. Doesn't cause nausea. It's alkaline (non-acid). Checks "plate-odor" (denture breath). Get FASTEETH at drug counters everywhere.



**ADD UP TO 25 POUNDS
of SOLID MUSCLES or you pay NOTHING**

\$10 Body Mold course included FREE with Dan Lurie Barbells. Only Dan Lurie Barbells and "Body Mold" courses produce such amazing results. 15 minutes a day can make you a bigger man. Send today for details. Order now at lowest factory price.
50 lb. set \$ 8.98 150 lb. set \$21.98
100 lb. set \$14.98 200 lb. set \$27.98
Semisteel sets approx. 10% higher. Extra wts. 14c per lb. Send 50% cash, balance C.O.D. F.O.B. Plant, Dan Lurie Barbell Co., 52-510 Bristol St. Dept. 970-K Brooklyn 12, N.Y.

**ENGINEERING DEGREE IN
27 MONTHS**

Students given option of studying engineering under accelerated program leading to Bachelor of Science Degree in 27 months; or the standard four-year program leading to Bachelor of Engineering Degree in 36 months. The B. S. degree in Mathematics, Chemistry, or Physics (including Nuclear Physics) may be earned in 36 months. By attending classes year-round, students can graduate in 3 years and have one year of experience and income in the time usually needed to complete a four-year college course. Preparatory courses. Thorough, practical program. Individualized instruction.

Keeping pace with progress in science and engineering. Campus, Dorms, gym, playing fields. Summer faculty. 2,000 students. New Dana Science Building. Low tuition. Earn board. G.I. approved. Enter Dec., March, June, Sept. Students from 50 states, 40 foreign countries. Send coupon for free catalog, full information. Enroll now!

INDIANA TECHNICAL COLLEGE

6109 E. Washington Boulevard, Fort Wayne 2, Indiana

Please send me free information on 27 mo. B.S. DEGREES in:

☐ Aeronautical ☐ Chemical ☐ Civil ☐ Electrical
☐ Mechanical ☐ Electronics

on 36 mo. B.E. DEGREES in:

☐ Aeronautical ☐ Chemical ☐ Civil ☐ Mechanical
☐ Electrical (Power or Electronics) ☐ Metallurgical

on 36 mo. B.S. DEGREES in:

☐ Mathematics ☐ Chemistry ☐ Physics

Name _____

Address _____

Get into...

PLASTIC LAMINATING AT HOME!

Sensational New
**"ONE MAN
BUSINESS"**
...pays \$10 to \$20 profit
for each dollar of cost.

Make Up to \$5 an Hour by
our **MAGIC MAIL PLAN**...get
orders and cash from your mailman!

Here's the newest and most fascinating of all home-operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within the reach of the small operator. Can be

operated in a corner of the kitchen, basement, or garage. And any man or woman, regardless of age, education, or experience—can learn this interesting work *in a few minutes of reading*—can turn out professional jobs *after one hour's practice*.

TWO EXCITING FIELDS FOR BIG PROFITS!

No house-to-house canvassing. No face-to-face selling. We not only supply the equipment you need for the work, but also show you exactly how to cash in big daily profits from two big demand fields.

A FORTUNE IN PLASTIC SEALING

Millions of people want to protect valuable cards, photographs, documents and papers against wear, soil, and damage. By our **MAGIC MAIL Plan** you get this business through the mails. Open envelopes and take out money and orders. Details of this plan will amaze you. It will be sent free. Just mail coupon.

ENORMOUS PROFITS IN LAMINATING

A creative, artistic business. Gift shops sell your entire output. Just a few of thousands of giftwares illustrated on this page. Beautiful colors. Endless designs. Exclusive "one of a kind" appeal brings sales at ten to twenty times the cost of materials. Beautiful illustrations and instructions for making these artistic novelties sent free.

**NO MONEY—
Just Send Name!**

WARNER ELECTRIC CO.

1512 Jarvis, Dept. L-3-L, Chicago 26, Illinois

Thousands of Beautiful ART CREATIONS

Made by Laminating as explained in our Free information. Send coupon for list and pictures of **COSTUME JEWELRY—JEWELS—CIGARETTE BOXES—CUFF LINKS—NOVELTY BUTTONS—TRAYS—CANDLESTICKS—COASTERS—CLOCK CASES—LAMP BASES—PICTURE FRAMES—BOOK ENDS—CHARMS—ADVERTISING SIGNS—NAME PLATES—BELT BUCKLES—CHECKERS—PAPER KNIVES—CHESSMEN—BOOKMARKS—TIE RACKS—KEEPSAKES OF ALL KINDS.**

The opportunities in Plastic Laminating are so big that space here does not permit even skimming the surface. To get any idea at all of the size of these markets and your place in this sensational business you must read the details. See for yourself how easy it is to do the work—how you can put plastic sheets into your machine and take out a fortune—how money and orders come to you in the mail—how gift shops clamor to get more and more of your creations—how you can start with one machine and build up a big production plant with others doing the work—how you can get money and business from every State in the Union—how you can achieve independence without study or experience.

FREE

at all of the size of these markets and your place in this sensational business you must read the details. See for yourself how easy it is to do the work—how you can put plastic sheets into your machine and take out a fortune—how money and orders come to you in the mail—how gift shops clamor to get more and more of your creations—how you can start with one machine and build up a big production plant with others doing the work—how you can get money and business from every State in the Union—how you can achieve independence without study or experience.

RUSH COUPON

Never before has such an opportunity been offered the small, home-operator—an opportunity to gain complete personal independence in a big money business of your own. Don't lose a minute. Get the facts at once. All information, fully illustrated with pictures, is free. Send the coupon—or send your name and address on a postcard. There is no charge now, or at any other time. Send for the information on this exciting opportunity today.



Cash Money Comes to You in the Mail

By our **MAGIC MAIL Plan** you sit at home, send out mail, and get back money and orders. Additional profits in supplying lifetime protection for **SNAPSHOTS—IDENTIFICATION CARDS—DISCHARGE PAPERS—DRIVERS' LICENSES—SOCIAL SECURITY CARDS—VOTERS REG. CARDS—MENUS—BIRTH CERTIFICATES—CREDIT CARDS—BIRTH AND WEDDING ANNOUNCEMENTS—PASSES—DOCUMENTS.**

Lifetime protection. See how laminating prevents soiling, wear, and moisture damage with flexible, plastic covers.



WARNER ELECTRIC CO., Dept. L-3-L
1512 Jarvis Avenue, Chicago 26, Illinois

Please mail, postage prepaid, complete information with illustrations showing the things I can make and the money possibilities in Plastic Laminating. All this is free. No Salesman is to call. Also, tell me how I get orders and money from my Postman by the **MAGIC MAIL Plan**.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

"MADE \$1200 ON ONE JOB"

Some make more, some less...

We help you start Your Own All-Year Business

Make BIG Money! With our easily operated, highly efficient wall washer, G. H. Jones made \$1200 on one school job. E. L. Goss took in more than \$10,000 in one year. E. C. Taber wrote, "I made \$400 gross in two weeks." And no wonder...this machine washes walls 6 times faster and better than by hand—with no mess...no drop cloths.



Your Money-Making Opportunity • We want more men to go into this profitable business for themselves and enjoy independence—freedom from layoffs and bosses. Customers everywhere—homes, offices, schools, churches, hotels, etc. How much you earn depends largely on you. What you take in is mostly profit. No need to rent shop or office; operate from home. Start spare time until full time is justified.

Lose No Time — Send Coupon Today for All the Facts

FREE BOOK! MAIL COUPON TODAY!

VON SCHRADER MFG. CO.

N11 "W" Pl., Racine, Wisconsin

Send at once (no obligation) your **FREE** booklet containing information about your **WALL WASHING MACHINE** and how I can start my own permanent, profitable business.

Name _____

Address _____

City _____ Zone _____ State _____

High School at Home

MANY FINISH IN 2 YEARS

No classes. No time wasted going to and from school. Progress as fast as your time and abilities permit. Standard H. S. texts supplied. Thousands enroll each year in this 62-year-old school. Send for **FREE** descriptive booklet.

AMERICAN SCHOOL, Dept. H746

Drexel at 58th St., Chicago 37, Ill.

Without obligation, please send **FREE** descriptive booklet.

Name _____

Address _____

Accredited Member National Home Study Council

realize your dream

Become a graduate engineer. Then promotion will not pass you by. Share rewards awaiting college men... higher income, rapid advancement. Important firms interview seniors here regularly. Approved for Veterans.

Graduate Engineer in 27 months

B.S. degree in Electrical Engineering (with either Electronics or Power major), also in Mechanical, Civil, Chemical, Aeronautical Engineering. In 36 Months a B.S. in Business Administration (General Business, Accounting, Motor Transport Management majors). For earnest, capable students. Small classes. More professional class hours. Mature students. Well-equipped labs. Modest costs. Year-round operation. Enter Jan., Mar., June, Sept. Write J. F. McCarthy, Director Admissions, for Catalog and "Your Career" Book.



TRI-STATE COLLEGE

5109 College Ave. • Angola, Indiana

WORLD'S LOWEST PRICED CALCULATOR!

NEW! NEW! NEW!

TOM THUMB ADDING MACHINE

With beautiful Leatherette carrying case.

MADE IN AMERICA BY AMERICANS

Beware of cheap imported imitations.

Adds Up To One Billion—1,000,000,000

Subtracts—Multiplies—Divides

Mistake Proof—Positively 100% Accurate—

Lightning Fast—Shock Proof Solid Steel Mechanism

GUARANTEED FOR YOUR LIFETIME

Ideal for Housewives, Shoppers, Students, Engi-

neers and Tax work. Take it to the Super Market

—Save \$\$\$ every week. We pay postage if you send

check, cash or money order—or just send your name

& address and pay postman \$1.97 plus postage.

Immediate Delivery—10 Day Free Trial—Satisfac-

tion Guaranteed money refunded by return mail.

Special Gift Offer: 2 Machines for only \$3.49

Agents Wanted—Make easy money selling a Top

Quality Calculator at our unbelievably low price.

TOM THUMB ADDING MACHINE

P.O. Box 5066, Dept. O-29, Philadelphia 11, Penna.

Not \$3.95

But Only \$1.97

\$2.03 in

Penna. including 3% Tax.



WANT MORE MONEY? GET INTO PHOTOGRAPHY

Coast to coast, high-paying jobs in photography are waiting for people with that "know-how" to fill them. You can quickly, easily qualify at home with the world-famous NYI Learn-by-Doing Method. Write today for free catalog. Also resident training in N. Y. Our 50th Year. Approved for Veterans.

NEW YORK INSTITUTE OF PHOTOGRAPHY

Dept. 5 10 West 33 St.

New York 1, N. Y.



Sell Warm
LEATHER
Jackets



Rush Card TODAY for FREE SELLING OUTFIT!

Sell warm leather jackets to truckers, milkmen, gas stations, etc. Men really go for these fast-selling garments of Horsehide, Capeskin, Suede, Nylon, and 100% Wool. Warm quilted linings, fur collars! As our man in your community, you make **BIG MONEY** on every sale, yet you don't invest one cent. Rush card **NOW**... start building your own big profit-making business right away.

MASON SHOE MFG. CO., Dept. F-832, Chippewa Falls, Wis.

RUPTURED

BE FREE FROM TRUSS SLAVERY

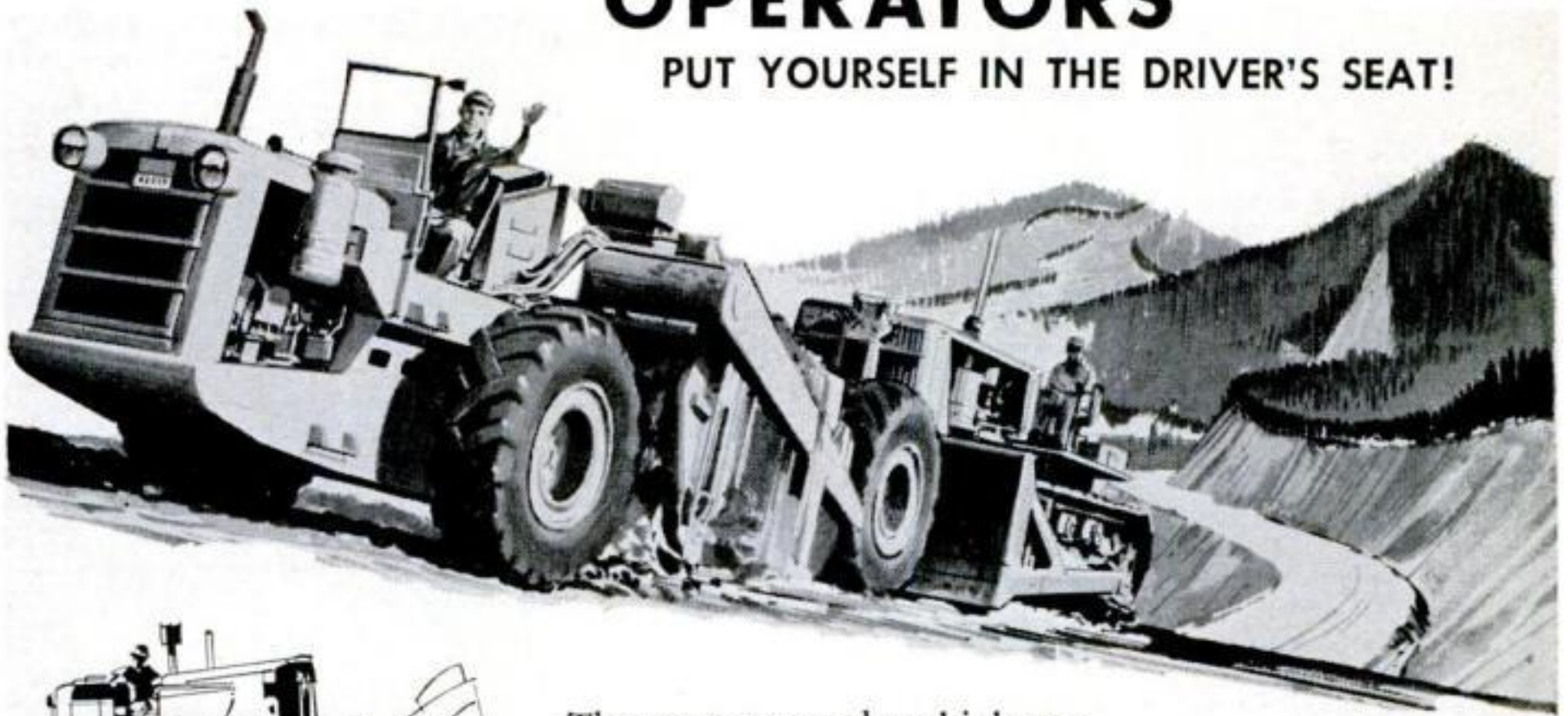
Surely you want to **THROW AWAY TRUSSES FOREVER**, be rid of Rupture Worries. Then Why Do you put up with wearing a griping, chafing and unsanitary truss the balance of your life? If you do, it will **NOT** be through necessity but through choice on your part.

Now there is a new modern **Non-Surgical** treatment that is designed to permanently correct rupture. These **Non-Surgical** treatments are so certain, that a Lifetime Certificate of Assurance is given. Write today for our New **FREE** Book that gives facts that may save you painful, expensive surgery. Tells how **non-surgically** you may again work, live, play, love and enjoy life in the manner you desire. There is no obligation.

Excelsior Medical Clinic, Dept. H6224, Excelsior Springs, Mo.

Train **NOW** as **HEAVY EQUIPMENT OPERATORS**

PUT YOURSELF IN THE DRIVER'S SEAT!



The most tremendous highway building program in history is under way... bridges, dams, houses, factories, are springing up all across the nation.... The construction industry is booming as never before. And *You* can have a box seat for this greatest show on earth!



EXPERIENCE UNNECESSARY — APPLY NOW

You will be trained thoroughly for modern heavy equipment operation. Learn to master heavy equipment such as: tractors, scrapers, graders, carry-alls. Engineering fundamentals... blueprint reading... operating controls... diesel engine operation... highway construction, etc.

If you are between 17 and 45, you can get into Heavy Equipment **NOW** — regardless of your present position, training or income. Nationwide placement service available upon completion. We help you with financing.

SEND FOR FREE INFORMATION

HEAVY EQUIPMENT TRAINING

Northwest Schools, Inc. (Dept. S-2)
1221 N. W. 21st Avenue • Portland 9, Oregon

Rush information without obligation.

Name _____

Address _____

City _____ State _____

Phone _____ Age _____

Education _____ Hours Worked _____



NOW — A MAJOR BREAK-THROUGH IN DISTRIBUTOR POINT DESIGN

Wake up your auto ignition system—give new life to your car or truck with the sensationally new and long lasting JORIN TRIPLE-CONTACT* DISTRIBUTOR POINTS. Get peak performance—faster starting, faster acceleration, smoother high-speeds and smoother idling. Increase gasoline mileage and cut down crank case dilution.



JORIN POINTS' round contact surfaces slide together smoothly, prevent point bounce—no bounce, no burn! No other points have the new, unique, fully tested and proved better JORIN Action! Self-aligning, self-cleaning, self-ventilating! Five times longer point life is not unusual, saves money, time and delivers maximum ignition system efficiency!

You'll actually feel the difference the minute you touch the accelerator. There's an instant surge of power, a power you've never felt before.

If your garage or auto dealer can't supply you, send only \$3.50 postage paid (1956-59 General Motors Cars \$4.50).

MONEY BACK GUARANTEE if not satisfied after 10 days use.

F. E. WOOL, DISTRIBUTOR

109 Williams Street, Williamsport, Penna.

*U.S. & Canadian Patents Pending

8" TILT ARBOR SAW 1959 MODEL BELOW COST

BLADE TILTS — TABLE STAYS LEVEL

Heavy duty all cast iron and steel construction. Precision ground cast iron table. Price includes massive cast iron mitre gauge and patented motor drive that fits any motor. Cross cuts, rips, bevels, mitres, dados, cuts compound angles — everything expected of saws costing four times as much. Depth of cut adjustable; 0" to 2 1/4" — table always level. Send check or M.O. \$2.00 deposits on C.O.D.'s.

SPECIAL BARGAIN — This saw is our 1959 model. Each saw is brand new — sent to you in factory sealed cartons. Sold and guaranteed direct from the factory to you at a fantastic bargain.

FREE 10 DAY TRIAL — MONEY BACK GUARANTEE

Try this famous saw 10 days. If you are not satisfied that it does the work of any tilt arbor saw, regardless of price, return for immediate money back refund.

Sent Express Collect

We reserve right to refund money if stock is exhausted

AMERICAN MACHINE & TOOL CO.

ROYERSFORD 2, PA.



Shipped
Complete
as Shown

NOW
\$14.95
WITH
BLADE

START YOUR OWN MAIL ORDER HOME BUSINESS

**FREE
Publication
SHOWS
YOU
HOW**

Get your **FREE COPY** of "How to Make Money in Mail Order" revealing plans on how and where to get best products to sell by mail, how to pocket profits in advance, how to get free ads. Men, women, families, start your own big profit home mail order business without experience or product investment. New Mail Order Exchange Plan helps beginners start. Confidential bulletins show you products to sell by mail, show newest sure-fire mail order techniques. Write today for your **Free**

Copy of "How to Make Money in Mail Order." There's no obligation. Airmail reaches us overnight. **MAIL ORDER EXCHANGE, 1717 Westwood, Dept. X24A, Los Angeles 24, California**

"YOU ARE UNDER ARREST!"

Help Bring Crooks to Justice Through Scientific CRIME DETECTION!



We have taught thousands this exciting, profitable, pleasant profession. Let us teach you **in your own home**. Learn Finger Printing, Firearms Identification, Police Photography, Secret Service Methods thoroughly, quickly, at small cost. Over 800 of all American Bureaus of Identification employ I.A.S. students or graduates. Write for **FREE "Blue Book of Crime,"** (A Correspondence School Since 1916)

INSTITUTE OF APPLIED SCIENCE, 1920 Sunnyside Ave., Dept. 1367, Chicago 40, Ill.

REAL ESTATE BE A BROKER

PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW! Graduates report making substantial incomes. Start and run your own business quickly. Men, women of all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, and related subjects. **STUDY AT HOME** or in classrooms in leading cities. Diploma awarded. Write **TODAY** for free book! No obligation.

**FREE
BOOK
TELLS
HOW**

Approved for World War II and Korean Veterans
WEAVER SCHOOL OF REAL ESTATE (Est. 1936)
20205 Grand Ave. Kansas City, Mo.

FIX OUTBOARD MOTORS

POWERMOWERS, AND ALL SMALL 2 & 4-CYCLE GASOLINE ENGINES

MAKE EXTRA MONEY — or, repair your own equipment and **SAVE!** Fully illustrated, easy-to-understand, Home Study Course. Write today for **FREE** information.

LINCOLN TECHNICAL INSTITUTE
SUITE 10-G, 472 MARKET STREET, NEWARK 5, N. J.



SUPER JU JITSU

Now get tough double quick!

A course of instruction in the art of practicing and using this method of applying **LIGHTNING-QUICK** Super Ju Jitsu. Be Dangerous! These amazing lessons show you how it's done ... in a big illustrated home-study course. The weapons are just your **BARE HANDS**—they can be used effectively if you know how and practice the art. Easy to learn; quick. Full 76-lesson course only **\$5.95** postpaid—or C.O.D., plus postage. Satisfaction or your money back guaranteed! Order "Super Ju Jitsu Course."

Nelson-Hall Co., 210 S. Clinton, Dept. KR-1, Chicago 6, Ill.

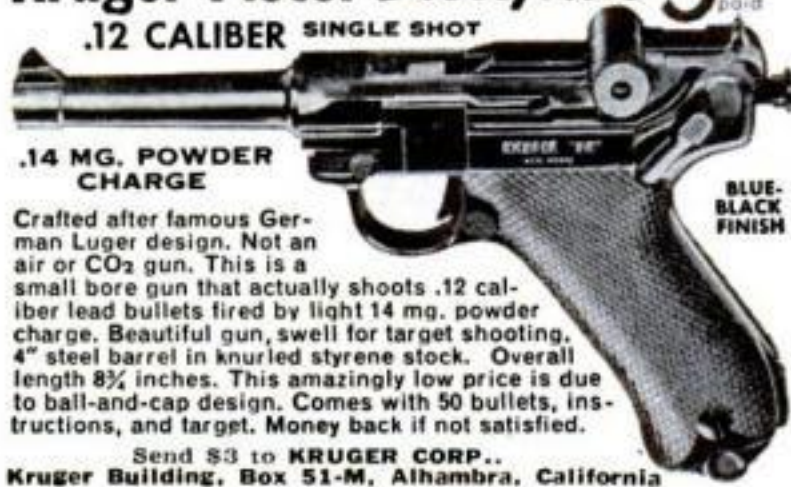
Kruger Pistol Bargain \$3.00 post paid

.12 CALIBER SINGLE SHOT

.14 MG. POWDER
CHARGE

Crafted after famous German Luger design. Not an air or CO₂ gun. This is a small bore gun that actually shoots .12 caliber lead bullets fired by light 14 mg. powder charge. Beautiful gun, swell for target shooting. 4" steel barrel in knurled styrene stock. Overall length 8 3/4 inches. This amazingly low price is due to ball-and-cap design. Comes with 50 bullets, instructions, and target. Money back if not satisfied.

Send \$3 to **KRUGER CORP.**
Kruger Building, Box 51-M, Alhambra, California



BLUE-
BLACK
FINISH

TAKE
THIS

Short Cut TO A Good Job IN AUTO MECHANICS (AND DIESEL)

WHY AREN'T YOU AN AUTO MECHANIC?

No other industry makes it so easy for an ambitious man to gain success. Consider these advantages: The pay is excellent—up to \$3 an hour and more. Work is steady—there are job openings for 100,000 men. Opportunities to go in business are abundant—America is short 25,000 repair shops. You can get ready for the big money—the bright future—in just a few months. *Mail coupon for free information on CTI's amazing Home Training Plan.*

Get Experience Using Tune-Up Kit & Tools

(Included with training)



CTI sends you a Tune-Up Kit, the kind that skilled mechanics use to locate engine troubles. You receive a Compression Tester; Vacuum Gauge & Fuel Pump Tester; Ignition Timing Light; portable steel case. You also get mechanic's tools, including socket set. You acquire experience using kits.

COMMERCIAL TRADES INSTITUTE • CHICAGO 26, ILL.

MAIL TODAY • TWO FREE BOOKS

CTI training is up-to-date, practical and easy to understand. You learn lubricating Systems; Power Brakes & Steering; Clutches; Automatic Transmission; etc. Only CTI offers you this extra choice: *At no extra cost, you also get instruction in Body and Fender Rebuilding or Diesel Mechanics.*



**AMERICA IS SHORT
100,000 MECHANICS**

EARN SPARE TIME DOLLARS AS YOU TRAIN

CTI Shop-Method training is so practical that many students fix cars soon after enrolling. Spare time profit pays tuition, buys shop equipment, helps meet living expenses. You can work on your own, or weekends in a repair shop. *Mail coupon today!*

COMMERCIAL TRADES INSTITUTE

1400 GREENLEAF AVENUE DEPT. A-1157
CHICAGO 26, ILLINOIS

Mail me your two booklets: *Big Money in Auto Mechanics*; and *Sample Lesson*. Both FREE.

Name.....Age.....

Address.....

City.....Zone.....State.....



CASH FILING SAWS

Make from \$3 to \$6 an hour spare time or start a full time business with the

FOLEY SAW FILER



Here is a steady repeat CASH business you can start at home in your basement or garage, while you are working at your regular job. No experience is necessary to turn out perfect cutting saws—"the first saw I sharpened came out 100%. I think the Foley Saw Filer is a marvel of perfection," writes Clarence E. Parsons. No canvassing—every saw you sharpen will bring you new customers. You will find you can make up to \$3 or \$6 an hour—\$20 to \$30 a week in your spare time as a starter. "My spare time saw filing business has made me \$952 these first ten months," says R. T. Chapman.

The new model 200 Foley Saw Filer (shown here) is the first and only machine that automatically sharpens combination (rip and crosscut) circular saws—also all hand saws, band saws and crosscut circular saws. It is easy to operate—simple adjustments—no eyestrain. Patented jointing principle evens up all irregular teeth and makes an old saw cut just like new.

This Free Book "MONEY MAKING FACTS" Shows How to Start

"MONEY MAKING FACTS" shows you how others have added hundreds of thousands of dollars to their incomes and how you can develop into a general repair shop that will be your own business. This is a CASH business with a small investment, no overhead, no stock of goods to carry. Time Payments if desired. Mail coupon now for free book and nation-wide survey of saw sharpening charges. No salesman will call.

**FOLEY MFG. CO., 1019-9 Foley Bldg.
Minneapolis 18, Minn.**

Send me free book "MONEY MAKING FACTS" and Saw Sharpening Price Guide.

Name.....

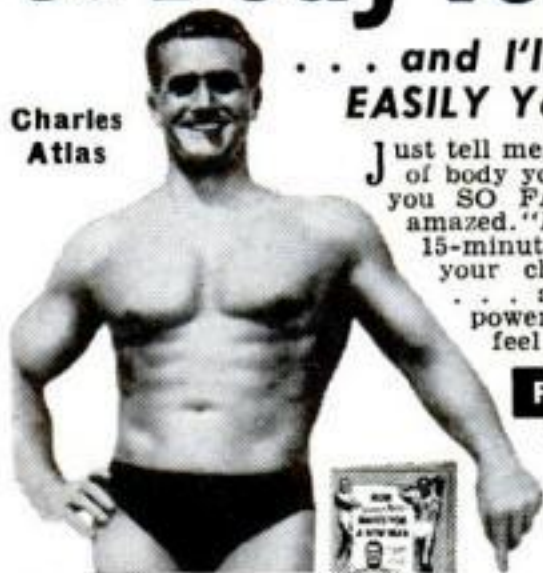
Address.....

City.....State.....



Check the Kind of Body You Want

Charles Atlas



... and I'll Show You How EASILY You Can Have It!

Just tell me, in coupon below, the kind of body you want—and I'll give it to you SO FAST your friends will be amazed. "Dynamic Tension," my easy, 15-minutes-a-day method, will make your chest and shoulders bulge... arms and legs surge with power... your whole body feel "alive!"

FREE BOOK Learn how I became "World's Most Perfectly Developed Man"—Mail coupon! CHARLES ATLAS, Dept. 1K, 115 East 23rd Street, New York City 10, N. Y.

CHARLES ATLAS, Dept. 1K, 115 East 23rd St., New York 10, N. Y.

Dear Charles Atlas: Here's the Kind of Body I want: (Check as many as you like)

- ☐ More Weight—Solid—in the Right Places ☐ Powerful Arms, Legs, Grip
☐ Broader Chest, Shoulders ☐ Slimmer Waist, Hips
☐ Better Sleep. More Energy

Send me absolutely FREE a copy of your famous book showing how "Dynamic Tension" can make me a new man—32 pages, crammed with photographs, answers to vital questions, and valuable advice. No obligation.

NAME _____ AGE _____
(please print or write plainly)
ADDRESS _____
CITY _____ ZONE _____ STATE _____



EARN BIG MONEY...

LEARN AT HOME IN SPARE TIME

You don't need previous training or art ability with the "Famous System of Manual Training!" With this modern streamlined method, you learn rapidly and easily...start to cartoon immediately, without tedious study or exercises.

Wide Demand for Cartoonists—Earn While You Learn...Magazines, newspapers, movies, television, ad agencies—all are searching for new cartoon ideas and talent. As a successful, Continental-trained Cartoonist, your earnings are not limited.

Many of our students start earning after first few lessons. A wonderful pastime, too.

We Supply Everything... As our student, you receive FREE of extra cost a big 15-piece Professional Kit containing all equipment and materials you need, and valuable Articulated Model that helps you draw any human pose.

Get All the Facts FREE... Big, colorful Free catalog gives all details plus pages of useful information. FREE for the asking. Use coupon.



SEND COUPON FOR FREE BOOK

Continental Schools, Inc.
4201 S. BROADWAY, LOS ANGELES 37, CALIF.

Continental Schools, Inc.
Dept. B-10, 4201 S. Broadway, Los Angeles 37, Calif.
Please rush me your Free Catalog and other information by return mail. No charge or obligation, no salesman will call.

NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____



OUR FABULOUS OVERSEAS PURCHASE! You receive one .380 Cal. postwar Browning pistol made for Royal Swedish officer corps in perfect unissued condition plus 3 clips brand new tooled buff cowhide belt holster, polished leather lanyard, oil and patch case & cleaning rod (all official accessories), a \$60 value. Fires standard U.S. .380 pistol ammo available everywhere.

TO ORDER: Send check, cash or M.O. \$5 deposit for C.O.D. Shipped Exp. Coll. F.O.B. Pasadena. Enclose signed statement: Am not alien, never convicted crime of violence, not under indictment or fugitive. Am 21 or over. Mass., Mo., Mich., N.Y., N.J., N.C., R.I., Omaha, N. Orleans, require permit. In Calif. order thru local dealer. Dealers inquire. **10 DAY MONEY BACK GUARANTEE.**

GOLDEN STATE ARMS CORP.

386 W. Green Street, Pasadena 42, Calif.



300 POWER



Conquer Space, Explore the Universe, Planets, Moon craters, New Stars, etc. Complete Lens Kit consists of 80 inch focal length ground and polished objective lens, eyepiece lenses for 60 POWER, 100 POWER, 150 POWER, 200 POWER, 250 POWER, 300 POWER, and all necessary lens fittings. Easy to make from simple step by step instructions. (Tripod and mount not included.) Money back guarantee

BUSSE SALES CO., Hartford, Conn., Dept. PS-80



... Swiss or American

Unique Sweazey System starts you making repairs right away. Develops your skill step-by-step. Teaches simplified modern shop methods... professional short cuts. Learn by spare time home study from professional trade school. Low terms. **Free Sample Lesson.** No obligation. Write today!

CHICAGO SCHOOL OF WATCHMAKING
2330 Milwaukee, Dept. 4109, Chicago 47, Ill.



The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all the wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt for only \$36.50. f.o.b., Burlington, Wisconsin. Write today for information and literature.

B&I MANUFACTURING CO.
Dept. S, Burlington, Wis.

DOES GETTING UP NIGHTS MAKE YOU FEEL OLD?

NEW YORK—Special: Thanks to new, scientific laboratory formulation, thousands of men and women now escape feeling old, tired, irritable and depressed from losing sleep and worrying about "Bladder Weakness"—too frequent, burning and itching urination, Bed Wetting, Getting Up Nights—or Strong Cloudy Urine, due to common Kidney or Bladder Irritations, which often result in secondary Backache, Headache and Nervousness. In such cases *New Improved CYSTEX* usually gives quick, calming relief by combating irritating germs in acid urine; and by relaxing, analgesic pain relief. Safe for young or old. Get *CYSTEX* at druggist. Feel better fast or money back.

"I'M MAKING MORE THAN \$1000 a Month Haven't Touched Bottom Yet!"



C. KAMA

—reports Charles Kama, Texas, one of many who are "cleaning up" with orders for PRESTO. Science's New Midget Miracle Fire Extinguisher. So can YOU!



Amazing new kind of fire extinguisher. Tiny "Presto" does job of bulky extinguishers that cost 4 times as much, are 8 times as heavy. Ends fires fast as 2 seconds. Never corrodes.

Guaranteed for 20 years! Over 3 million sold! Sells for only \$4.95.

Show it to civil defense workers, owners of homes, cars, boats, farms, etc., and to stores for re-sale—make good income. H. J. Kerr reports \$20 a day. Wm. Wydallis \$15.20 an hour. **FREE Sales Kit. No obligation.**

MERLITE INDUSTRIES, Dept. P-16E
PRESTO DIV., 114 E. 32 St., New York 16, N.Y.
Canada: Mopa Co., Ltd., 371 Dowd St., Montreal 1, P.Q.

Keep your home cleaner... healthier!

SAVE 1/3

on HOME FILTER COSTS!



Contains permanent metal frame and four filter changes. Frame lasts the life of your furnace... save the frame cost with every filter change. Replacement filter kit contains six changes for the same price as the original kit. You save 1/3!

MICROMAT is completely sanitary... treated with a potent germicide to control germs and bacteria! Does a superior job of removing dirt, pollen, other impurities from the air... keeps your home cleaner, healthier... saves fuel and service calls!

There's a MICROMAT Sanitary Air Filter for all warm air furnaces, central heating and cooling systems, and room air conditioners. Ask for Micromat at your favorite Hardware or Building Supply store. If there is no dealer near you, or he cannot supply you — order your MICROMAT Sanitary FILTER KIT direct — only \$4.60 postpaid. Send check or M.O., and filter size, to:



COMPLETE KIT... ONLY \$4.60

Microtron CORPORATION
Box 2092 • CHARLOTTE, N. C.

YOU can earn more

More money, higher hourly pay, a home or business of your own—all these and many other advantages are yours when you know a specialized trade. You learn to earn big pay in our large, block long, modern equipped Chicago school and shop. Training in Chicago is easier than you think. No previous experience necessary. We help you find part time work and living quarters while you train. Day, evening, or part time courses. Free job placement assistance after you graduate. We have more job openings than graduates to fill them in some trades. You learn by actually using the tools and equipment under personal supervision of skilled technicians. Minimum class room instruction. Greer Shop Training, with 57 years of continuous operation experience, is the largest trade school in the world and is recognized by industry. Greer established 1902.

APPROVED FOR CIVILIANS ☐ OR VETS ☐

SHORT TERM DIPLOMA COURSES IN

- ☐ DIESEL MECH.
- ☐ AUTO MECH.
- ☐ BODY & FENDER REPAIR
- ☐ GAS-ARC WELDING
- ☐ REFRIGERATION—AIR-CONDITIONING
- ☐ MACHINIST
- ☐ ADVANCED MACHINIST—TOOL & DIE

ENGINEERING COURSES

These courses teach practical and technical phases and lead to a degree. They are designed to prepare men for supervisory positions in Diesel-Automotive and Refrigeration-Air Conditioning fields. Students with high school education, or equivalent, will be accepted.

- ☐ DIESEL AUTOMOTIVE ENGINEERING.....27 months
- ☐ REFRIGERATION & AIR COND. ENGINEERING.....18 months
- ☐ WELDING ENGINEERING18 months

Start your career with Greer by checking your interest above and mail coupon for complete information at no obligation.

NAME _____ AGE _____
STREET _____
TOWN _____ ZONE _____ STATE _____
BOX J ☐ VET

with
GREER shop training
2238 S. Michigan Ave., Chicago 16, Ill.

DRAFTSMEN



**CASH BIG
PAY CHECKS!**

**Train Now for
more success,
greater security**

**LEARN AT HOME IN SPARE TIME
(or at college in Chicago)**

Check the want ads in any newspaper—SEE the big-pay opportunities open to you as a draftsman. What's more, you can learn this well-paid, prestige profession at home—quickly, easily! No special talent needed! Get complete, step-by-step Chicago Tech lessons in the mail, spend a few pleasant hours studying each week. In a short time you'll be a well-trained draftsman, ready to take your pick of many good jobs. Act now!



FREE INFORMATION—MAIL COUPON TODAY!
Get FREE TRIAL LESSON plus information about C.T.C. practical training. Learn what successful Chicago Tech graduates say about high pay and opportunities in drafting. No charge, or obligation.

CHICAGO TECHNICAL COLLEGE

**N-227 Tech Bldg., 2000 So. Michigan Ave.
Chicago 16, Illinois**
Mail me FREE Lesson with information about big opportunities in DRAFTING.

Name Age
Address
City Zone State



Speedy squeeze bottle. No muss, no fuss. Dries fast, clear and strong! Building or fixing, best all-purpose glue you can buy.

Send stamped, self-addressed envelope for Free copy of "Elmer's Guide to Good Gluing". Write Elmer, The Borden Company, Dept. 10-H, 350 Madison Avenue, New York 17, N. Y.
BORDEN'S PRODUCTS FOR THE HOME HANDYMAN

Shrinks Hemorrhoids New Way Without Surgery Stops Itch—Relieves Pain

For the first time science has found a new healing substance with the astonishing ability to shrink hemorrhoids and to relieve pain—without surgery.

In case after case, while gently relieving pain, actual reduction (shrinkage) took place.

Most amazing of all—results were so thorough that sufferers made astonishing statements like "Piles have ceased to be a problem!"

The secret is a new healing substance (Bio-Dyne*)—discovery of a world-famous research institute.

This substance is now available in suppository or ointment form under the name Preparation H.* Ask for it at all drug counters—money back guarantee.

*Reg. U.S. Pat. Off.

Make \$5 an Hour CASH PROFIT

THE DAY YOU START!

**Start your own business at Home...
Sharpen Household,
Garden and Shop
Tools in Spare Time.**



Turn spare time into Big Cash Profits with new Belsaw Sharp-All. No experience needed to sharpen knives, scissors, shears, ice skates, mower blades, hedge trimmers, axes, chisels and circular saws... Learn how easily you can start your own spare time business. Amazing low cost easy-payment plan. Send Postcard for FREE BOOK. BELSAW SHARP-ALL CO. 700 Field Bldg., Kansas City 11, Mo.



BARBELLS

**100
POUND
SET**

\$12.80

Extra
Plates Only
12c Pound

140-Pound, CHROME DELUXE Barbell-Dumbbell set only \$19.80.
This is our feature set and is the finest ever manufactured.
Training with adjustable weight is the BEST way to keep fit; the ONLY way to develop great strength and a perfect body. As the oldest and best equipped barbell company, BUR gives value and prices no one can equal.

SEND FOR FREE CATALOG.

BUR BARBELL CO.

Lyndhurst 5, New Jersey

Say GOODBYE to TV ROOF Antennas!



Just PLUG IN New "SOCKE-T-ENNA" \$4.95

Now you can discard bulky roof antenna or unsightly indoor antenna. Revolutionary new ELECTRONIC "Socke-T-Enna" plugs in like electric cord, and turns all your housewiring into huge TV antenna. Brings in good reception from all directions, in almost any area. Fine also for AM-FM and SW radios. Stays out of sight, uses no current. Satisfaction guaranteed or return it in 10 days for full refund.



ZALYTRON TUBE CORP. 220 West 42nd St., New York 36. Dept. 40-A

CHRONOGRAPH WATCH



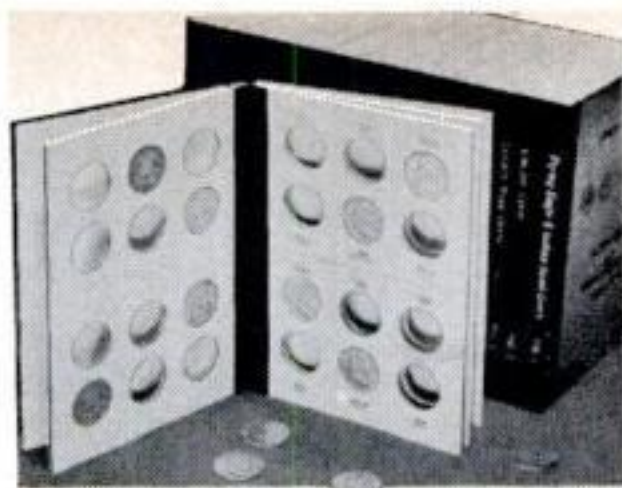
tells the time, measures the distance and the speed of moving objects. It's also a stop-watch — all for only \$9.95. Precision-made with rugged, shock-resistant case, radium hands and numerals, sweep hand. One-year guarantee (excl. parts). Instructions and band included for \$9.95 ppd.

CRYDER SALES CORPORATION

Box 79-C-92

Whitestone 57, N. Y.

8 1/4" x 6 1/4", title stamped in gold. Coins protected front and back by clear movable plastic. Story of coin in every volume.



Is there a penny in your pocket worth \$200?

Did you know that many U.S. pennies, nickels, dimes, quarters and halves are valued at as much as \$200? One of these rare coins might be in your pocket right now! Coin collectors know these coins and their true value. Gimbel's all-new albums, The Library of Coins, help you collect American coins and tell you which are the rare ones. There's a window in each album for every year and mint mark. Library of Coins albums keep your coins locked in and show both sides!

Here are some popular albums:

Lincoln Cents, since 1909	\$2.95
Jefferson Nickels, since 1938 ..	2.95
Roosevelt Dimes, since 1946 ..	1.95
Washington Quarters, since 1932	3.95
Franklin Halves, since 1948	2.95

Albums available for all other U.S. coins, too. 52-page illustrated coin catalogue 25c, or given FREE with purchase of any album. Write for FREE booklet, "Exciting Coins of the World." Send check or M. O. to

Gimbels Coin Department PS10
New York 1, N. Y.

BRAND NEW

PRISM BINOCULARS



FULLY GUARANTEED
POINT OF INFORMATION
Binoculars vary in quality, in assembly, shorter construction, glued instead of clamped prisms, inferior focusing. Our binoculars assure you of no skimping in quality.

15 DAY MONEY BACK GUARANTEE

These full size binoculars are mfr'd in Japan by fine optical craftsmen. The clamped prisms and achromatic coated lenses are considered the best in precision. Utmost in quality, lowest in price.



\$100

Gov't Cost \$10.90

Variable Density Filter
Gov't Surplus—Never Used

Especially designed for bright sunlight. Simply slips on binocular. Vary density with flip of finger. Sold only with binocular purchase.

Handsome Pigskin Leather case and straps included with each binocular

SIZE	TYPE FOCUS	Width of view at 1,000 yds.	MFR. LIST PRICE	OUR PRICE
7x35	Individual	358 ft.	\$24.95	\$15.25*
7x35	Center	358 ft.	30.75	19.75*
7x50	Individual	372 ft.	32.95	19.95*
7x50	Center	372 ft.	36.25	23.95*
8x30	Individual	393 ft.	27.45	17.50*
8x30	Center	393 ft.	30.75	20.95*
8x40	Individual	314 ft.	32.95	20.50*
8x40	Center	314 ft.	36.25	24.50*
10x50	Individual	262 ft.	32.95	25.95*
10x50	Center	262 ft.	35.95	28.95*
16x50	Individual	183 ft.	38.45	26.95*
16x50	Center	183 ft.	43.45	29.95*
EXTRA W/A 7x35	Center	578 ft.	54.45	30.95*

(7x35 W/A will not take filter)

*Add 10% Fed. Excise Tax & 50¢ Postage

Send Check or Money Order to:

JOB LOT TRADING CO. BOX 351, CHURCH ST. STATION, N.Y. 8, N.Y.

NOW...
Train at
home for some
of today's most
spectacular
OPPORTUNITIES

... including
GUIDED

MISSILE CONTROL

Nothing else like it! Prepare
in spare time for **REAL EARNINGS** in

RADIO • TELEVISION

Electronics

... the amazing multi-billion dollar opportunity field that's helping pave the way to the exploration of OUTER SPACE. Wonderful choice of opportunities for earning **REAL MONEY**—including Radar, Television, Radio, Automation Electronics, Guided Missile Control, your own business and other interest-packed branches. NOW ... get every modern training aid you need at home, including picture-clear **MOVIES**, texts, and 16 shipments of **HOME LABORATORY EQUIPMENT** for needed practical experience.



Employment Service

At no extra cost, all graduates get DeVry Tech's **EMPLOYMENT SERVICE** that has helped thousands of men earn **REAL MONEY!** Often more jobs than grads!

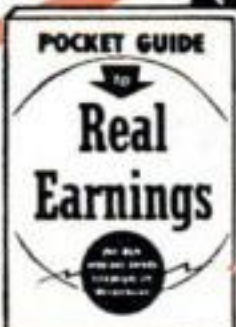
JUST "COMMON SENSE" NEEDED TO START

No advanced education or previous technical experience needed. If preferred, you may attend DeVry Tech's well-equipped laboratories in Chicago or Toronto. See for yourself. Mail coupon today.

FREE!

Men 17-55—get 2 **FREE** booklets, "Come With Us to Outer Space" and "Pocket Guide to Real Earnings." Informative! Fascinating!

Come With Us to OUTER SPACE



MILITARY SERVICE?

Act now. Get valuable information we have for men facing military service.

MAIL TODAY!

De Vry TECH

Formerly
DeFOREST'S TRAINING, INC.
Chicago 41, Ill.

DeVRY TECHNICAL INSTITUTE

4141 Belmont Avenue,
Chicago 41, Ill., Dept. PS-10-P

2058

I would like your **FREE** booklets and information on how I can prepare to enter **ELECTRONICS**.

Name _____ Age _____

Street _____ Apt. _____

City _____ Zone _____ State _____

Canadian residents address:
DeVry Tech of Canada, Ltd.,
626 Roselawn Ave., Toronto 12, Ontario



Make "Pro"
Enlargements
in your Home
Tonight!

with a famous

BESLER DARKROOM

... in your own basement, bathroom,
kitchen, closet or clubhouse!

Taking pictures is twice the fun when
you make them into giant enlargements.
Outfit with lens, chemicals, paper, trays,
easel, timer. Beseler 23C Enlarger... if
purchased individually, would cost \$287!

\$195

DENVER WEST \$206

Complete Outfit

MAIL THIS COUPON TONITE!

CHARLES BESELER CO.
214 S. 18th St., East Orange, N. J.
Please rush my FREE booklet,
"Fun in the Darkroom."



NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

©1959, Charles Beseler Company

EARN \$100 A WEEK AND UP

BE AN AUTO-DIESEL MECHANIC... EARN WHILE YOU LEARN

Many of our graduates earn \$100 a week
and up. You learn fast in our school and
shops because you learn with tools on real
equipment. Experienced instructors explain
WHY and show you HOW, then you DO IT
YOURSELF. One of the best equipped tech-
nical schools in the United States. Thirty-
nine years' experience training men. Success-
ful graduates in 48 states and many foreign
countries. Approved for veterans. Day and
evening classes. Free bulletin—write today.

NASHVILLE AUTO-DIESEL COLLEGE
226 7th Ave. N., Dept. 42 Nashville, Tenn.

\$1 BRINGS YOU \$18

Discover Flok-Kraft and Earn \$\$\$\$\$ AT HOME

Earn up to \$15.00 per hour spare time. Amazing new Velvet-
fiber spray instantly makes any object (Lamps, Radio & TV
Cabinets, Figurines, Signs, Auto dash boards, toys, furniture,
draperies—anything) worth expensive \$\$\$\$\$ Prices... like
magic, you can spray anything with this beautiful new suede-
like finish that feels like rich Velvet.

EARN UP TO \$300.00 PER WEEK SPARE TIME

Imagine, materials cost only 3c per square foot. (Average TV
or radio cabinet can be beautifully sprayed with this startling
new 3-dimensional Velvet finish in 15 minutes at a cost of only
34c in materials. Your charge for this job is at least \$10.00.)

REPRESENTATIVES IN YOUR AREA URGENTLY NEEDED

Own your own business. Work at home in your spare time. Help
fill the huge growing demand for this amazing new beautiful
Velvet-fiber finish. Orders come from stores, offices, homes, ar-
chitects, auto dealers—everywhere. Possible \$20,000,000.00
worth of jobs to be done. Investigate today—be first in your
area!

Actual samples in 16 Radiant Colors. Booklet of 50 Home Busi-
ness Opportunities and Confidential Details all sent free! Send no
money. Write: Coast Industries, Los Angeles 61, Calif., Dept. A-10.

LAW FREE BOOK

THE LAW
TRAINED
MAN

Write today for a FREE copy of illustrated law book, "THE LAW-
TRAINED MAN," which shows how to earn the professional Bachelor
of Laws (LL.B.) degree through home study of the famous Blackstone
Law Course. All necessary books and lessons provided. Moderate cost;
convenient monthly terms. Write for FREE law training book today.

Blackstone School of Law, 307 N. Michigan Ave.
Founded 1890 Dept. 127, Chicago 1, Illinois

HYDRAULIC JACK REPAIRS



Earn While You Learn at Home

Millions of jacks in gas & auto-service stations, truckers,
body-shops, riggers, factories, farms need servicing. We
show you HOW—easy step by step directions—what tools
to use. EARN UP TO \$5 an hour, in spare time, in your
own basement or garage. Start your own business NOW.

Write for folder No. PS-10, & free bonus offer.

Institute of Hydraulic Jack Repair
P.O. Box 50, Bloomfield, N. J.

STUDY TO BE A DOCTOR of Psychology or Metaphysics

Obtain a Ps.D., Ms.D., or Ph.D. Be a Teacher, Lecturer or Ac-
credited Practitioner. Teach others how to achieve Health, Hap-
piness and Contentment. Chartered by State. Correspondence
courses only. Write for FREE book telling how.

THE NEOTARIAN FELLOWSHIP

Desk 5, Pickwick Building

Kansas City 6, Missouri

Catalog of 2900 Novelties 10c

New



Send 10c for amazing catalog of novelties, live animals,
scientific supplies, hobbies, funmakers, planes & boats,
rooms, magic tricks, joke articles, unusual seeds, gad-
get timesavers, cameras, optical goods, projectors,
movies, lucky jewelry, religious novelties, disguises,
musical instruments, stamps, coins, puzzles, fortune
tellers, radios, auto & bike accessories, telescopes, magnifiers, com-
passes, banks, smokers' gadgets, artists' supplies, printing sets, en-
gines, motors, shockers, knives, billboards, fireworks, guns, rifles,
sports, books, games, plants, etc. Send name, address & 10c to:
JOHNSON SMITH & CO., Dept. 466 Detroit 7, Michigan

SEWS LEATHER AND TOUGH TEXTILES LIKE A MACHINE

With SPEEDY STITCHER Automatic Sewing Awl,
anyone can quickly and skillfully sew or repair any-
thing made of LEATHER, CANVAS, NYLON, PLAS-
TIC, or other heavy materials. Sews firm, even lock-
stitches like a machine. Gets into hard-to-reach
places. Specially made for heavy duty sewing on
LUGGAGE, FOOTWEAR, RUGS, AWNING, SAILS,
SADDLERY, UPHOLSTERY, OVERALLS, AUTO-TOPS,
SPORTS GEAR, and other tough sewing jobs. Here's
the handiest tool you'll ever own. Will save you
many times its small cost. Comes ready for instant
use... complete with bobbins of waxed
thread and 3 different types of diamond-
pointed needles. Easy-to-follow directions
will make you an expert in minutes. Extra
needles and waxed-thread always avail-
able. Save money, send \$1.98 for post-
paid delivery. If C.O.D., \$1.98 plus
postage. MONEY BACK GUARANTEE.



SPORTSMAN'S POST
366 Madison Ave., Dept. A-51, New York 17

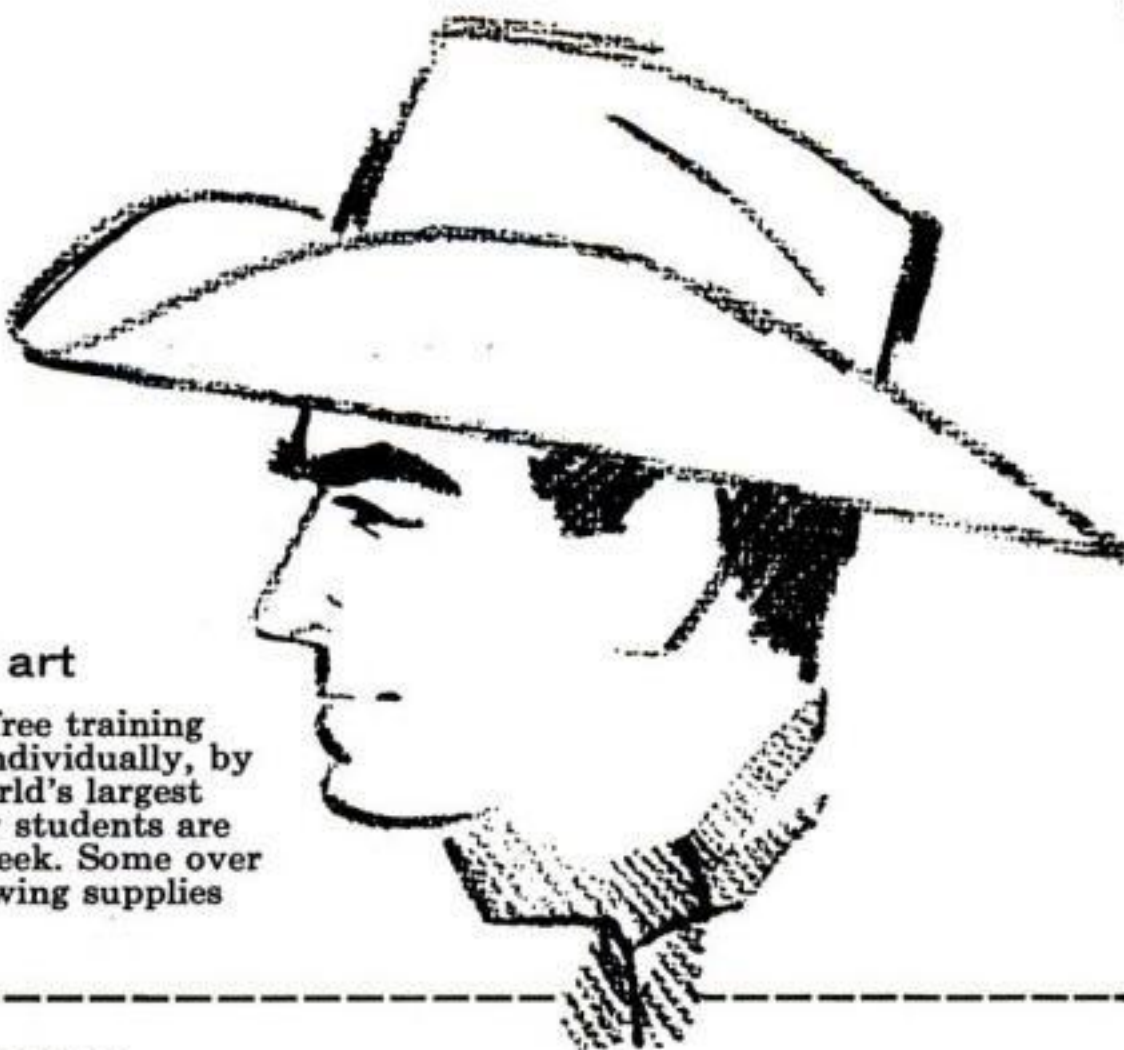
ONLY

1.98

DRAW ME

You may win a \$430.00 scholarship in commercial art

Winner gets a complete art course—free training in commercial art. You are taught, individually, by professional artists on the staff of world's largest home study art school. Many former students are now earning upwards from \$150 a week. Some over \$50,000 a year. Winner also gets drawing supplies and valuable art textbooks.



ART INSTRUCTION, INC., STUDIO 10149

500 South 4th Street, Minneapolis 15, Minnesota

Please enter my attached drawing in your draw-a-head contest.
(PLEASE PRINT)

Name _____ AGE _____

Occupation _____

Address _____ Apt. _____ County _____

City _____ Zone _____ State _____

DRAW COWBOY'S HEAD 5 inches high. Use pencil. Drawings for November 1959 contest must be received by November 30. None returned. Winner notified. Amateurs only. Our students not eligible. Mail drawing today.

FREE!
350 BIG PAGES
OF BARGAINS
LIKE THIS

24 36 JUMBO PAGES
MONTH AFTER MONTH

- Ham Radio
- LP Records
- Power Tools
- Optical Goods
- Test Equipment
- Hi-Fi Components

8 TRANSISTOR \$29.95
PORTABLE WITH BATTERY

Versatile! Use anywhere as powerful long distance radio, as portable amplifier for phone — as 2nd half of stereo system. 6 1/2 x 3 1/2 x 1 1/4". Top grain leather case.

Because Radio Shack has millions of mail order customers, Radio Shack gets first offerings from manufacturers needing cash, first refusal on closeouts, first choice on new items! All these opportunities are passed along to Radio Shack customers in our Bargain Bulletins and Record Flyers. To be "in the know", just fill in and mail the coupon!

RADIO SHACK Corporation
730 Commonwealth Ave., Boston 17, Mass.

Please send me:

- | | |
|--|---------------------------------|
| <input type="checkbox"/> FREE Bargain Bulletins for 12 Months | 10J |
| <input type="checkbox"/> FREE Record Flyers for 12 Months | |
| <input type="checkbox"/> 1960 Electronic Buying Guide @ 35c | <input type="checkbox"/> Check |
| <input type="checkbox"/> 8 pc. Stereo Package #92LX220 @ \$64.50 | <input type="checkbox"/> M.O. |
| <input type="checkbox"/> 8 Transistor Radio, 90LX696 @ \$29.95 | <input type="checkbox"/> C.O.D. |

Name _____

Street _____

City _____ Zone _____ State _____



35c
NOW
AVAILABLE!
1960 GUIDE
TO ELECTRONIC
PARTS BUYING

300 pages, 8 1/2 x 11, illustrated hand-book. Articles, engineering data plus buying guide. Over 40,000 items. Use coupon to order today!

ENGINEERING



Photo of Heald Students
in Electrical Laboratory

*Heald Trained Engineers
are Moving Ahead and
Winning High Positions
Throughout American
Business and Industry.*

**BACHELOR OF
SCIENCE DEGREE,
30 MONTHS**

Degree Courses:

- ☐ Electronic Engineering
- ☐ Electrical Engineering
- ☐ Highway Engineering
- ☐ Mechanical Engineering
- ☐ Structural Engineering
- ☐ Civil Engineering
- ☐ Architecture

Diploma Courses:

- ☐ TELEVISION ☐ Color TV
- ☐ Electronic Technician
- ☐ Industrial Electronic Tech.
- ☐ Tool & Die Design
- ☐ Architectural Drafting
- ☐ Mechanical Drafting
- ☐ Structural Drafting

Approved for Veterans

Enroll Now for New Term

*Heald College Ranks FIRST
West of the Mississippi
in "Who's Who in America"*

Send for FREE Information

Heald Engineering College

Est. 1883

Van Ness at Post, Dept. PS-959
San Francisco, California

NAME _____

STREET _____

CITY _____

STATE _____

Not everyone does as well, but T. N. CODY, who started a business of his own, reports...

For 12 months I've averaged

\$800

per month income

— most of it clear profit for me!

Many men have discovered how to be independent, to be free of layoffs and bosses. C. G. Naples grossed more than \$200 his first week. A father-son combination grossed \$44,000 their second year. H. Lemon says, "I netted \$133 in one 8-hour day."

How much you make depends largely on you. You need no special skill, no large investment. Start part time if you wish.

NO SHOP NECESSARY • Our Electric Deterger shampoos rugs, carpets right on floor—removes dirt and grime and helps to show their natural color and beauty. So efficient and safe it is used by largest railroads and hotels.

This is not a lease proposition. You own the machine, you work when and where you please and all the money you take in is your own. No risk. Machines fully guaranteed.

VON SCHRADER MFG. CO.,
N11 "R" Pl., Racine, Wis.

Without obligation send me **FREE** booklet about your RUG DETERGER and tell me how I can start my own permanent, profitable business.

Mail
Coupon
Today
for
FREE
Book

Name _____
Address _____
City _____ Zone _____ State _____



C-10

**Beauty by
Colorcrete
Can Earn
High Incomes**



Beautifying buildings by Colorcrete is a business opportunity awaiting men of modest capital everywhere. Owners of homes, stores, motels, schools — almost any type of construction—are looking for means to give lifetime eye-appeal to drab or dirty concrete, stucco and similar masonry surfaces. Colorcretors can do such jobs, in little time and at little cost, and pocket generous profits. Colorcrete is a cementitious material, applied by air pressure. Tough, tenacious, enduring; 30 colors. Investigate this low-investment enterprise by writing for the Opportunity Book.

COLORCRETE INDUSTRIES, INC.
572 Ottawa Ave., Holland, Mich.

COLORCRETE

LIKE WRITING WITH A PENCIL



**HANDY
CARVE**
BILLFOLD KIT

New **WONDER TOOL** Makes Leatherwork **EASY**

It's Revolutionary — Carve and complete lovely leather designs. All you need is... "HANDY CARVE." No special techniques, no pounding, no hammering, perfect for use in hospitals or where noise is a problem. HANDY CARVE has knife edge to cut outline, and spoonshaped modeler for shading. Billfold kit complete with easy instructions, plus Craftaid for making outlines.

\$2.95

FREE CATALOG SUBSCRIPTION

TANDY LEATHER CO. (SINCE 1919)
P.O. Box 791—OR FORT WORTH, TEXAS

MICROSCOPE SLIDES

Fascinating Subjects—Scientifically Prepared

At these low prices you can now afford a complete Aristo-Craft Slides Library. Each set consists of 6 different, exciting slides, packed in book form for easy, quick reference. Each slide is labeled.

**SETS: B1-ANIMALS • B2-PLANTS • B3-FIBRES
B4-HAIRS • B5-CRYSTALS • B6-FOODS. SAVE!
LIBRARY of 6 DIFFERENT SETS (36 Slides) —
Only \$3.95 ppd.**

Send self-addressed and stamped envelope for **FREE** SLIDES LIST. Hundreds of subjects.

POLK'S HOBBIES • 314 5th Ave., (Dept. PS119) N.Y. 1, N.Y.



69c SET
Ppd.



MUSICAL CHURCH KIT

Plays Silent Night. You can sell these as fast as you can assemble them if you wish. Beautiful all wood, 11 in. high with brass bell in steeple. Many lovely features. Regular retail price \$7.95. **COMPLETE KIT PRICE at ONLY \$3.95 P.P. 6 for \$3.50 each.**

PILTZECKER IMPORTS
Wood-Ridge, N. J.

SIGN PAINTING

Home-Study Course—Only \$5.95

Teaches you commercial sign painting and sign building as it is being done TODAY in leading shops all over the country. Complete practical course for self-instruction. Shows latest methods of truck lettering, office doors, wood letters, reflecting signs, plastics, sprayed signs, gold leaf, silk screen process, up-to-date alphabets, money-making business information, etc. **SATISFACTION GUARANTEED OR REFUND!** Contains all the instruction of a high-priced correspondence course. Full price, only \$5.95, postpaid. Or C.O.D. plus postage. No risk—order today. Satisfaction or money back! Order "Sign Painting Course."

NELSON-HALL CO., 210 S. Clinton St., Dept. KR-1, Chicago 6, Ill.



WANT A BETTER JOB? BECOME AN ELECTRONIC ENGINEER

**ONLY 32 MONTHS TO EARN A BACHELOR OF
SCIENCE DEGREE IN ELECTRONIC ENGINEERING**

Class enrollment limited to allow for individual instruction. Chartered by State of California. Nonprofit-non-sectarian, coeducational—established 31 years. Either day or evening classes.

APPROVED FOR VETS—ENROLL NOW!

**PACIFIC STATES UNIVERSITY, Dept. 109
1516 S. Western Ave., Los Angeles 6, Calif.**

Please send your **FREE CATALOG**.

Name.....

Address.....

**WEAR THE SHOE THAT'S
ALIVE WITH COMFORT!**



No. 444

FREE!

Write for
helpful booklet —
"Better Foot
Care with
Better Footwear"



Are your feet complaining? Do your working days seem long and tiring? Then isn't it time to try a pair of Red Wing's rugged lightweights with genuine Wedge-Crepe soles and the Original RED WING's "Sweat-Proof" Leather Insoles? Makes mighty soft walking.

RED WING SHOE COMPANY
195 MAIN STREET
RED WING, MINNESOTA



YOU NEED
THIS

FREE GIANT 1960 B-A
CATALOG



204
KING-SIZED
PAGES

EVERYTHING
IN RADIO
TV AND
ELECTRONICS

100'S OF
NEW ITEMS
LISTED HERE
FOR 1st TIME

21 PAGES
OF BARGAINS
NOT IN ANY
OTHER CATALOG

BURSTEIN-APPLEBEE CO.

Dept. PS, 1012 McGee St., Kansas City 6, Mo.

☐ Send Free 1960 B-A Catalog No. 601.

Name.....

Address.....

City.....State.....

**SEND
FOR IT
TODAY**



EASY TO APPLY. PLIOBOND requires no mixing, brushes on, dries rapidly.

EXCELLENT ADHESION. PLIOBOND exhibits exceptional strength — up to 1600 lbs./sq. in. in shear tests.

EXTREMELY DURABLE. PLIOBOND resists age, heat, cold, water, chemicals, oils.



Pliobond
BY
GOOD YEAR

Pliobond — T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

FREEZER TIP NO. 43



Seal in freshness and flavor of pies and baked goods with "SCOTCH" Brand Freezer Tape. Fruit pies are better when frozen unbaked. Cream pies: bake as usual but freeze without meringue. Moisture-resistant "SCOTCH" Freezer Tape sticks in freezing cold to saran and other films, to foil or paper. Tape is a label, too . . . you can write on it! Get "SCOTCH" Brand in handy cutter-edge carton—in thrifty 35¢ or 98¢ rolls.

**Don't run short . . .
BETTER BUY TWO!**

Made by
Minnesota Mining & Mfg. Co.
St. Paul 6, Minn.
© 3M Co., 1958



LEARN WOODWORKING AT HOME

Complete Home Training Course in Woodworking and Cabinetmaking Now Available

Today—it's easy to acquire the skills and craftsmanship of fine woodworking and cabinetmaking with Interstate's complete "shop method" course. Prepared by expert instructors, the course consists of 22 profusely illustrated training manuals containing more than 1100 pages of instruction. Covers all phases of woodworking, including selection of woods, planning and laying out projects, correct use and care of all hand and power tools, joint making, cutting, assembling, finishing, simple upholstery, etc. Over 75 learn-by-doing instruction projects give work bench training and experience in actual construction. Course is approved for beginners and professionals alike.



SEND FOR FREE BOOKLET TODAY

INTERSTATE TRAINING SERVICE

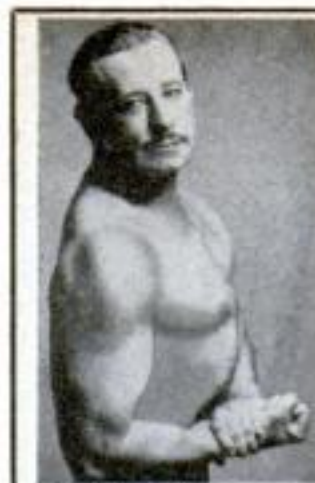
Dept. F-2, Portland 12, Oregon

Please send free booklet and information on your complete course in Woodworking and Cabinetmaking.

Name _____

Address _____

City _____ Zone _____ State _____



My pupils—from 11 to 87—prove
**YOU CAN HAVE A NEW
BODY AT ANY AGE . . .**

with New Health—New Strength!
Now—at last—you can quickly and easily GAIN pounds of solid muscle—or REDUCE unsightly, dangerous fat. Build a SUPER-PHYSIQUE, with POWERFUL, shapely muscles—OR—just keep fit and healthy . . . in top condition.

Billy Van says: "ALL YOU NEED IS A ROPE!"

My amazing scientific discovery, "ROPERCISE," Guarantees Results in a few minutes 3 DAYS A WEEK! Write NOW for FREE booklet.

BILLY VAN—PHYSICAL DIRECTOR

4834 Art St.

Studio 2

San Diego 15, California

TELLS HOW TO SELL YOUR INVENTION

If you have an invention that you believe has merit, write us at once for copy of copyrighted booklet "How to Go About Selling Your Invention." We work with manufacturers, and booklet reveals present markets, qualities of a saleable invention, current royalty rates being paid by manufacturers. Booklet is FREE, is offered to encourage new ideas we might submit to manufacturers. Just send name (no drawings, please) to Kessler Sales Corporation, Dept. D-710, Fremont, Ohio



**"\$7,108⁵⁰ FIRST YEAR
SERVICING RADIATORS!"**

— Hank Konter, Newcastle, Wyo.

Make good money servicing auto-truck-tractor radiators. Easy to learn. Inland, world's largest radiator equipment mfr., offers complete package—equipment, merchandising, "pays-for-itself" financing, free training. Small down payment on equipment starts you. Profitable dept. for garage or service station. Write

INLAND MFG. CO., Dept. PS-10, 1108 Jackson St., Omaha 2, Nebr.



SONGS-POEMS

RECORDING CONTRACTS

FREE REVIEW

Mail to STAR-CREST Recording Co.
Dept. A-6, 1350 N. Highland, Hollywood 28, Calif.

BUILD YOUR OWN RADIO

Table Model approx. 8x4". We supply all engineered parts and materials, clear concise steps—ONE CIRCUIT AT A TIME. As you build you learn the function of each simple circuit—then you learn how to trouble shoot each circuit. Complete cost \$21.88 no extras. 30 day unconditional refund if not satisfied for any reason. Let practical experts help you get into this new high paying field.



Authorized Radio Builders, R. D. No. 1, Bloomingburg, N. Y.

Million Dollar Inventory — All Famous Brands

TIRE SALE
AT LESS THAN WHOLESALE!

SAVINGS NEVER LESS THAN 50% UP TO 70% OFF REGULAR PRICES

HEADQUARTERS FOR ALL SPORTS CAR TIRE SIZES

➔ SEND FOR YOUR FREE CATALOG! ➔

RELIABLE TIRE CO. • 730 MORGAN BLVD.
CAMDEN 4, N. J.

RECORD YOUR OWN STEREO



WEBSTER RECORD-PLAYBACK PREAMP

Dual-channel control center for playing stereo discs, and for erasing, recording, and playing monaural, two or four track stereo tapes. Volume control, record/playback switch, speed compensating switch, erase switch, on/off switch and VU meter for each channel. 6 inputs, 4 outputs.

See it at your dealer — or write for Eng. Specifications HF1-1

WEBSTER ELECTRIC ELECTRONICS DIV. Racine, Wisconsin

MIRACLE ADDITIVE CUTS POLISHING TIME IN HALF



From dirt to shine in half the time. DYNA-SHINE, the new miracle working agent brings the most stubborn car waxes to a brilliant, longer lasting lustre with fewer sweeps of the cloth. Simply use your favorite paste wax, add DYNA-SHINE and have a streak-free finish that lasts longer . . . it's so easy.

ORDER NOW! While special offer is in effect. Regular Size (one year's supply) \$2.00; Professional Size \$5.00, Post Paid. No C.O.D.'s please. Completely safe, money back guarantee.

LOGAN SQ. PRODUCTS, P. O. Box 7935, Chicago 80, Ill.



HITS LIKE A RIFLE—KILLS RABBITS, SQUIRRELS.

Powerful, silent, accurate. For hunting, target, routing pests.

Sportsman's choice sold world over!

HUNTING SLINGSHOT

NEW! surgical quality pure gum rubber. 275 heavy extra steel balls 98c. Heavy duty 7" ash stock. 40 heavy steel balls, extra rubber, target, adapter for shooting arrows. GUARANTEED. Professional model of Nat'l Slingshot Assn. At dealers, or write Wham-O Mfg. Co. Box 15 B, San Gabriel, Calif.



Become A - - -

BUILDING CONTRACTOR!

MAIL COUPON for FREE BROCHURE

Simplified home study training program. Learn every phase of building, estimating, contracting. Fortunes are made in this line of work every year. Use spare hours—no interference with present work. Diploma awarded. Low tuition rates.

AMERICAN TECHNICAL SOCIETY
Dept. BJ-109 850 E. 58th Street, Chicago 37, Ill.

Please send me your FREE Brochure and full details of your building, estimating and contracting training program.

Name _____ Age _____

Address _____

City _____ State _____



These men are getting practical training in ...

ELECTRICITY



ELECTRONICS

ON REAL

Motors • Generators
Switchboards • Controls
Modern Appliances
Automatic Electronic
Control Units

TELEVISION



Radio Electronics

ON REAL

TV Receivers
Black & White and Color
AM-FM and Auto Radios
Transistors • Printed
Circuits • Test Equipment

Train in NEW Shop-Labs of

COYNE

In Chicago—Electrical and Electronic Center of the World. Prepare for a better job and a successful future in a TOP OPPORTUNITY FIELD. Train on real full size equipment at COYNE where thousands of successful men have trained for 60 years—largest, oldest, best equipped school of its kind. Professional and experienced instructors show you how, then do practical jobs yourself on more than a quarter of a million dollars worth of equipment. No previous experience or advanced education needed. Employment Service to Graduates.

Start Now — Pay Later — Liberal Finance and Payment Plans. Pay most of tuition after graduation. Part-time employment help for students. Choose from nine yearly Starting Dates.

Mail Coupon or Write to Address Below for Free Book — "Guide to Careers." Whether you prefer ELECTRICITY, TELEVISION-RADIO or COMBINED ELECTRONICS TRAINING, which includes both fields, this book describes all training offered.

Information comes by mail. No obligation and NO SALESMAN WILL CALL.

B. W. Cooke, Jr., Pres.

Founded 1899

COYNE ELECTRICAL SCHOOL

Chartered as an Educational Institution Not for Profit
1501 W. Congress Pkwy., Chicago 7, Ill., Dept. 79-4C

MAIL COUPON OR WRITE TO ADDRESS BELOW

COYNE ELECTRICAL SCHOOL
New Coyne Building, Dept. 79-4C
1501 W. Congress Pkwy., Chicago 7, Ill.

Send BIG FREE book and details of all the training you offer. However, I am especially interested in:

☐ Electricity ☐ Television ☐ Both Fields

Name _____

Address _____

City _____ State _____

(I understand no Salesman will call)





PAY 2 or 3¢ on the DOLLAR for 1000's of Useful Items of U.S. GOV'T SURPLUS

**AT THE AMAZING PRICES
PAID AT GOV'T SURPLUS SALES**

Autos.....\$78	Tractors.....\$68
Trucks.....\$212	Motors.....99¢
Boats.....\$5.90	Typewriters..\$6.80
Compressors..\$9.69	Generators..\$8.78

You BUY DIRECT from U. S. Government at TREMENDOUS savings. Eliminate middlemen—Save BIG MONEY! Pay as LOW as 2¢ on the dollar. Our DIRECTORY Gov't Surplus Sales lists 100's Army, Navy, Air Force Surplus Depots all over the world. BUY JEEPS, sports equipment, hunting, fishing and photographic equipment and supplies, radio, electronic and electrical equipment, trucks, boats, airplanes. Plumbing, hardware, office equipment & supplies. Tools, machinery, furniture. This 1959 book tells how to buy Gov't Surplus DIRECT. No dealer profits to pay. Get on the gravy train NOW! Send \$1 TODAY for "Gov't Surplus DIRECTORY" to **AVIATION SURPLUS, Dept. PS-10, Box 789, York, Pa.**

"ONE DOLLAR" buys

As much as \$15 worth—Everything Brand New and sold to you with a money back guarantee.

DEDUCT 10% ON ORDER OF \$10 OR OVER

- | | |
|--|--|
| <input type="checkbox"/> 1—5" PM SPEAKER alnico #5 magnet.....\$1 | <input type="checkbox"/> 100—ASST. 1/2 WATT RESISTORS some 5%.....\$1 |
| <input type="checkbox"/> 20—TUBULAR CONDENSERS .05-600v.....\$1 | <input type="checkbox"/> 70—ASSORTED 1 WATT RESISTORS some 5%.....\$1 |
| <input type="checkbox"/> 40—ASST. PRECISION RESISTORS best sizes.....\$1 | <input type="checkbox"/> 35—ASSORTED 2 WATT RESISTORS some 5%.....\$1 |
| <input type="checkbox"/> 35—ASST. DISC CERAMICS best numbers.....\$1 | <input type="checkbox"/> 50—ASST. TUBULAR CONDENSERS.....\$1 |
| <input type="checkbox"/> 35—DISC CERAMICS 5000 muf.....\$1 | <input type="checkbox"/> 10—6' ELECTRIC LINE CORDS with plugs.....\$1 |
| <input type="checkbox"/> 50—ASSORTED FUSES popular sizes.....\$1 | <input type="checkbox"/> 5—TV CHEATER CORDS with both plugs.....\$1 |
| <input type="checkbox"/> 50—470K 1/2 WATT RESISTORS 10%.....\$1 | <input type="checkbox"/> 4—50' SPOOLS HOOK-UP WIRE 4 colors.....\$1 |
| <input type="checkbox"/> 10—ASST. WIREWOUND RESISTORS 5, 10, 20 watt.....\$1 | <input type="checkbox"/> 50—STRIPS ASST. SPAGHETTI best sizes.....\$1 |
| <input type="checkbox"/> 3—AUDIO OUTPUT TRANSFORMERS 50L6 type.....\$1 | <input type="checkbox"/> 100—ASST. RUBBER GROMMETS best sizes.....\$1 |
| <input type="checkbox"/> 3—AUDIO OUTPUT TRANS. 6K6 or 6V6 type.....\$1 | <input type="checkbox"/> 100'—TWIN LEAD-IN WIRE 300 ohms heavy duty.....\$1 |
| <input type="checkbox"/> 3—I.F. COIL TRANSFORMERS 466 kc.....\$1 | <input type="checkbox"/> 25'—INSULATED SHIELDED WIRE.....\$1 |
| <input type="checkbox"/> 3—I.F. COIL TRANSFORMERS 10.7 mc. FM.....\$1 | <input type="checkbox"/> 1—\$7 INDOOR TV ANTENNA hi-gain 3 section.....\$1 |
| <input type="checkbox"/> 4—OVAL LOOP ANTENNAS ass't hi-gain types.....\$1 | <input type="checkbox"/> 3—ASST. TOGGLE SWITCHES spst, dpdt, etc.....\$1 |
| <input type="checkbox"/> 3—1/2 MEG VOLUME CONTROLS with switch.....\$1 | <input type="checkbox"/> 200—SELF TAPPING SCREWS #8 x 1/2".....\$1 |
| <input type="checkbox"/> 10—SURE GRIP ALLIGATOR CLIPS.....\$1 | <input type="checkbox"/> 35—ASST. RADIO KNOBS screw and push-on.....\$1 |
| <input type="checkbox"/> 1—GOLD GRILLE CLOTH 14" x 14" or 12" x 18".....\$1 | <input type="checkbox"/> 600—ASST. H'DWARE screws, nuts, rivets, etc.....\$1 |
| <input type="checkbox"/> 10—SETS PHONO PLUGS and PIN JACKS.....\$1 | <input type="checkbox"/> 35—ASST. SOCKETS octal, noval and miniature.....\$1 |
| <input type="checkbox"/> 2—\$2.50 SAPPHIRE NEEDLES 10,000 playings.....\$1 | <input type="checkbox"/> 50—ASST. MICA CONDENSERS some in 5%.....\$1 |
| <input type="checkbox"/> 3—DIODE CRYSTALS 1-IN60, 1-IN64, 1-IN69.....\$1 | <input type="checkbox"/> 50—ASST. CERAMIC CONDENSERS.....\$1 |
| <input type="checkbox"/> 2—SELENIUM RECTIFIERS 1-65ma & 1-150 ma.....\$1 | <input type="checkbox"/> 50—ASST. TERMINAL STRIPS 1, 2, 3, 4 lug.....\$1 |
| <input type="checkbox"/> 15—ASST. TV COILS sync, peaking, width, etc.....\$1 | <input type="checkbox"/> 10—ASST. RADIO ELECTRO CONDENSERS.....\$1 |
| <input type="checkbox"/> 6—SOCKET WRENCHES (Set) 3/16" to 7/16".....\$1 | <input type="checkbox"/> 5—ASST. TV ELECTROLYTIC CONDENSERS.....\$1 |
| <input type="checkbox"/> 1—LB. SPOOL ROSIN CORE SOLDER 40/60".....\$1 | <input type="checkbox"/> 3—ELECTROLYTIC CONDENSERS 80-450v.....\$1 |
| <input type="checkbox"/> 3—TV ALIGNMENT TOOLS assortment #1.....\$1 | <input type="checkbox"/> 3—ELECTROLYTIC COND. 50/80-150v.....\$1 |
| <input type="checkbox"/> 3—TV ALIGNMENT TOOLS assortment #2.....\$1 | <input type="checkbox"/> \$15—"JACKPOT" TELEVISION PARTS.....\$1 |

Pencil mark items wanted and enclose with money order or check. ON SMALL ORDERS—Include stamps for postage, excess will be refunded. Larger orders shipped express collect.

BROOKS TV 84 Vesey St., New York 7, N.Y.

FLY YOUR OWN Bensen HELICOPTER

Simple to fly — build it yourself, with engine or as inexpensive glider type which can be mounted on floats or boat. Order 3-view drawing, specs and photo of Glider for \$1 or motor powered Gyro-Copter \$2.



Building plans and kits also available—**BENSEN AIRCRAFT CORP., Dept. PS-109**
P. O. Box 2746, Raleigh, N. C.

Send
\$1
or
\$2

Name

Address

EYE GLASSES by MAIL As low as \$1.95

WRITE for FREE
CATALOG with 14
LENS SAMPLE CARD

Thousands of
Customers
Est. 1939



QUALITY READING — or BIFOCAL GLASSES for FAR and NEAR Recommended for folks approximately 40 years or older who do not have astigmatism or disease of the eye, and who have difficulty reading or seeing far.

ADVANCE SPECTACLE CO. Inc., Dept. SP-10
537 So. DEARBORN ST. CHICAGO 5, ILLINOIS

RUPTURED? NEW LASTING RELIEF

ENJOY NEW FREEDOM

Yes, enjoy new freedom of action, amazing peace of mind and comfort at work or play. New pleasures replace rupture pain. The proven, patented MILLER holds your rupture back Day and Night... bringing you new lasting relief as it has thousands of others.

FREE! Write for relief FACTS free. Send name and address to:
FRED B. MILLER, Dept. 3-P
Exclusive Manufacturer
HAGERSTOWN, MARYLAND



Get
FREE
FACTS



SEND
FOR
FREE
BOOK

BIG EARNINGS WAITING for TYPEWRITER REPAIRMEN

Skilled men are in demand in the new, uncrowded field of typewriter repair. You'll quickly step into a big-pay job or business of your own, full or part time. EARN while learning easily at home under expert guidance. Materials, tools, typewriter supplied.

Write TODAY for FREE book.
TYPEWRITER REPAIR SCHOOL, INC.
Dept. K-29, 150 Park Ave., E. Rutherford, N. J.
Lic. by New Jersey Dept. of Educ.

8 FT. SPECIALS — 80¢



These GIANT 8 FOOTERS can be yours, while they last, at a fraction of their value. New, genuine neoprene govt. surplus. Great for advertising, you paint your message on 'em, inflate & fly. Attracts crowds to sales, displays, openings, stores, gas stations. Fun at home for young & old and just the thing for any party or school prom. Perfect for beach or picnic. They're BIG, they're FUN, they're useful, so order yours today!

8' dia.-80¢ ea. 2 for \$1.50
13' dia.-\$1.95 ea.

Postage pd. on ppd. orders.
Cal. res. add sales tax.

FRANK SALES, Dept. PS-1059, 3930 Sunset Blvd., Los Angeles 29, Calif.

Only **Consistent Feedings** of Specialized Lubrication To Upper Cylinder Areas **Prevent** Cars From Ageing Into Powerless, Sluggish Misfits

Thousands of car owners agree this is the only way to maintain "the peak power performance of a new car"...enjoy a smoother quieter engine for years. Engines keep their pick-up zip! Engine repairs practically nil!

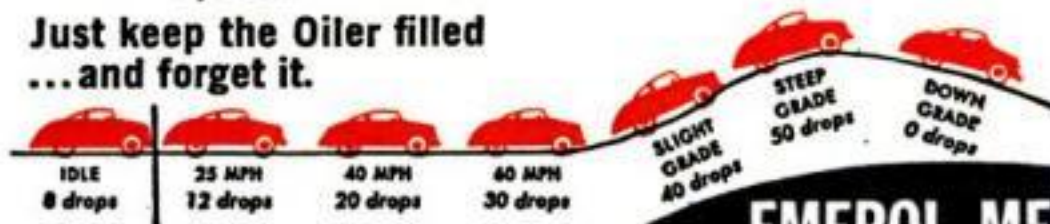
NOW...THE ANSWER TO
REGULAR FEEDINGS..

Automatically

The **MARVEL** INVERSE OILER

Operating off the intake manifold, this completely automatic oiler feeds world-famous MARVEL MYSTERY OIL to the upper cylinder areas in exact proportion to engine load and speed.

Just keep the Oiler filled
...and forget it.



EMEROL MFG. CO., INC.

331 North Main Street
Port Chester, N. Y.



MARVEL INVERSE OILER now available at most dealers. Surprisingly low in cost! Installation Kits for all cars. Write Dept. PS for free information.

How You Can Develop a **SUCCESS-WINNING VOICE**

Put more warmth, friendliness and magnetism in your everyday voice. You'll find it worth dollars and cents to you in your business, trade or profession... and in social life a persuasive voice, with real character, is priceless! We have been voice-training average men and women (as well as celebrities) since 1916. More than 200,000 members! TV-Star Robert Cummings is one of our celebrity graduates.

FREE BOOK

"Voice Power and Personal Power"

Write today for my big illustrated voice book. Explains all about our amazing method... and tells what we can do for you. No cost, no obligation—it's free! Just send me your name, address, and your age. Book will be mailed at once in plain sealed wrapper. No salesman will bother you.

Eugene Feuchtinger, PREFECT VOICE INSTITUTE
210 South Clinton St., Dept. KR-1, Chicago 6, Ill.



TRAINED MEN NEEDED!

IN INDUSTRY—ARMED FORCES
BIG PAY!—GOOD FUTURE!

- | | |
|---------------------------------|--------------------------------------|
| <input type="checkbox"/> DIESEL | <input type="checkbox"/> ELECTRONICS |
| <input type="checkbox"/> AUTO | <input type="checkbox"/> AUTOMATION |

NEVER BEFORE has the opportunity been so good for the properly trained mechanic and technician to step into **BIG PAY POSITIONS** with rapid advancement and future security virtually assured.

YOUR SUCCESS depends on the quality of training you receive... and the reputation of the school you attend.

YOUR GUARANTEE we are giving the best in mechanical and technical training is proved by the fact... High pay jobs in Industry, and ratings in the Armed Forces now waiting for our graduates.

RESIDENT SHOP TRAINING is easier and costs less than you may think! We provide you with housing and part-time jobs while in school, plus free nation-wide placement service for graduates.

Check subject above in which you are interested and mail for

FREE BOOKLET

Your Future
IN
ELECTRONICS
AND
AUTOMATION

BAILEY
Technical Schools

Veteran Approved

1650 S. Grand, St. Louis 4, Mo.

Your Future
in...
DIESEL and
AUTO
MECHANICS

Name _____ Age _____
Street _____
Town _____ Zone _____ State _____

NOW! Shut Out Cold, Wind, Water, Snow . . . Keep Garage Warm & Dry ALL WINTER with



FLEXIBLE RUBBER GARAGE DOOR BOTTOM

Don't waste precious heating dollars! Keep winter cold, snow, rain, dust and drafts out—keep heat in with this amazing heavy-duty live rubber weatherstripping. Ingenious front and back lip contour design makes it an automatically perfect closure regardless of shape of floor. Guaranteed never to harden, rot or deteriorate in any fashion. Eliminates forever ear-shattering noises no matter how hard you slam down your overhead garage door. Ideal also for sides of double hung garage doors, barn doors, etc. Can be permanently applied in only 10 minutes—requiring just a hammer—we supply the nails. Complete, simple instructions in pilot film pack.

9 foot strip \$2.98 ppd.
16 foot strip \$4.98 ppd.

Famous Frost King



PLASTIC STORM WINDOWS

- Shatterproof
- Waterproof
- Winterproof

720"x36" — 180 sq. ft. — More than enough to winterproof an average house only **\$2.69**

plus 31¢ pp. & hdg.

Only pennies per window give you sure-fire protection the year 'round. Installs in minutes—no skill needed. All you need is a shears and hammer—we supply all else. Unlike ordinary plastic sheeting, Frost King is expressly designed for storm window use. It seals in heat as it seals out cold, "breathes" with your house. Frost King is unconditionally guaranteed to give you years of satisfactory use under the severest of conditions . . . guaranteed never to shatter . . . unaffected by wind, rain, snow, sleet or dampness.



For Shop, Inspection Bench, Machine Tool, Laboratories

adjust on 3 ball joints, to 100 watt bulb. Has 8-foot long-wearing neoprene cord and plug. Finished in pale green with reflective white enamel interior reflector. Shade is permanently attached to support arm so it cannot come off or pull the bulb socket apart.

Versatile, Fully Adjustable WORKBENCH LAMP

Swivels and angles in every conceivable direction. Guaranteed to hold your light exactly where you want it, because 3 arms (2-12" and 1-10") Easy to mount anywhere. Takes up to 100 watt bulb. Has 8-foot long-wearing neoprene cord and plug. Finished in pale green with reflective white enamel interior reflector. Shade is permanently attached to support arm so it cannot come off or pull the bulb socket apart.

\$5.98 ppd.

Comparable with radios listing at \$75 without batteries!

8 TRANSISTOR "Jewel" POCKET RADIO

MADE IN U.S.A. \$29.95 INCLUDING BATTERIES

JEWEL 8 transistor radio—never before available at this low, low price! Has unbreakable Styrene plastic case—earphone attachment outlet—3 position metal stand-up easel and carrying handle. Built-in antenna is OMNI-DIRECTIONAL . . . radio plays equally well regardless of position. Powerful 8 transistor superheterodyne circuit, has full tuning range of 540 to 1620 kilocycles. Brings in distant stations without station overlap. Clear, full distortion-free tone that can be turned up to amazingly big volume. Plays in train, plane, car, steel construction buildings—anywhere! Each complete with warranty registration card for factory service and repair in New York City. Limited quantities . . . order NOW for prompt delivery!

LEATHER CARRYING CASE—with snap lock and sturdy leather strap—\$2.49 ppd.
PRECISION PRIVATE EARPHONE ATTACHMENT—\$1.98 ppd.

Send check or money order, if C.O.D. fees extra. Money-back guarantee.

SCOTT MITCHELL HOUSE, INC. Dept. E-10, 415 S. Broadway
Yonkers, New York



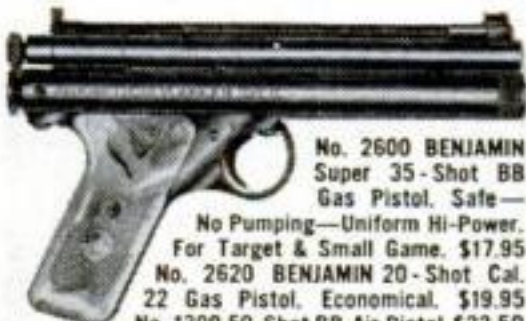
FOCUS YOUR EYE on BENJAMIN

SMOOTH BORE BB OR RIFLED 22—AIR OR GAS GUNS—ROUND LEAD AMMO EFFECTIVE UP TO 100 FT.

AMAZING NEW Line of REPEATERS

WITH THE LATEST IMPROVEMENT IN FAST, SURE, GRAVITY LOADING ACTION AND PIGGY-BACK SHOT MAGAZINE

A Shot is placed in Firing Position each time Bolt is Pulled Back and Closed. Flash Ammo Count on Full View Magazine.



No. 1320 BENJAMIN 35-Shot Cal. 22 Air Pistol \$24.50

FREE Catalog All Models Benjamin Single Shot & Repeaters—Cal. BB or 177 or 22. Also, Special Hunting & Fishing Knife Offer.

BENJAMIN AIR RIFLE CO., 852 MARION ST., ST. LOUIS 4. MO.

No. 3600 BENJAMIN Super 100 Shot BB Gas Rifle. Non-Toxic—Safe—Convenient—Uniform Hi-Velocity Power. —
No. 3620 BENJAMIN Super 85 Shot Cal. 22 Gas Rifle . . . \$20.95
No. 3100 Super 100 Shot BB Air Rifle. Adj. Shooting Force \$23.95
No. 3120 BENJAMIN Super 85 Shot Cal. 22 Air Rifle . . . \$25.95

\$18.95



Taft MAKES IT EASY TO **ENJOY BOATING NOW**

18 ft. Cruiser
Only \$16.89 Per Mo.

MASS PRODUCTION PRICES EASY TERMS

NO WONDER WE SELL SO MANY!

FREE COLOR CATALOG

Taft, world's largest boat kit maker, now offers a full line, at mass production prices, from \$42.00, on easy terms.

Write today for color catalog and full information.

TAFT MARINE WOODCRAFT
Dept. PC-1059 636 39th Avenue N.E. Minneapolis, Minn.

WHY GET LOST?

A dependable **HULL COMPASS** will keep you "on course" wherever you go . . . strange cities, new neighborhoods . . . at junctions and detours. A color to match your car or boat. \$5.95 to \$7.50. At your dealer. Write for literature

HULL MFG. CO., P.O. Box 246-E-10, Warren, O.

Authenticast

THE WORLD'S MOST EXCEPTIONAL MODELS!

MOST UNUSUAL MILITARY VEHICLE EVER DEvised! ONTOS
Six 106mm Rifles

ALL METAL - Cast to perfection 5197
from Government blueprints! \$1.75

Almost 1000 models! **WRITE FOR CATALOG** 35¢
Comet Metal Products Co., Inc. Richmond Hill 18, N.Y. N.Y.

EXCLUSIVE DOUBLE-BEARING HEAVY DUTY PUMPS

IRRIGATE • DRAIN • CIRCULATE • SPRAY
Use 1/4 HP motor or larger . . . 1 HP for up to 7,500 GPH; 1,000 GPH 60' high; or 3,000 GPH from 25' well, 1 1/4" inlet; 1" outlet. Stainless shaft. **TYPE X—2 oil-less; \$10.95**
bronze bearings. Won't rust. **TYPE XB—Ball bearing model. \$12.95**
Best for belt drives.
Postpaid if cash with order.
Don't delay—send for yours today!
MONEY BACK GUARANTEE
Centrifugal and Gear Pumps in All Sizes
LABAWCO PUMPS, Belle Mead 4, N. J.

MAKE EXTRA CASH

SHARPENING LAWN MOWERS THE MODERN WAY

\$275.00
F.O.B. Pasadena

Start your own shop! Full or spare time. Earn many dollars in a short time . . . average \$5.00 per hour. Many mowers need sharpening. With MODERN'S Extra Heavy Duty LAWN MOWER SHARPENER AND BED KNIFE GRINDER you have 6 machines in one. All operations are done quickly and easily. You make money from the start. Write for free details.

MODERN MFG. CO.
160 N. Fair Oaks Ave. Dept. Pasadena, California 11-4

Comforting Facts about WOLVERINE WORK SHOES



WOLVERINE
ROCKFORD, MICHIGAN

Service Oxfords
Work Shoes • Boots
Safety Shoes

PLUS THESE COMFORT FEATURES—



• FOAM RUBBER CUSHION
INSOLE WITH SWEAT-PROOF
LEATHER COVER • RIBBED
STEEL SHANK • CHOICE OF
SOLES TO FIT YOUR JOB

ABSOLUTELY FREE!

Amazing 48-page
muscle-building
course, with
photos of
Champs! HOW
TO DEVELOP A

HE-MAN BODY!

TRADE IN that skinny, scrawny, milk
toast body of yours for a jet-charged
WEIDER physique — rippling with
mountains of mighty muscle, oozing
confidence and virility out of every
pore! Now get my SENSATIONAL
INTRODUCTORY MUSCLE-BUILDING
COURSE — not for \$100, not for
\$50 but **ABSOLUTELY FREE** if
you act now!

Mail this coupon for your **FREE COPY**.
See how easy it is to have a DYNAMIC
HE-MAN BODY in just 15 minutes a
day in your own home! Hurry,
while offer lasts! Mail today!

JOE WEIDER, Dept. 100-109-M
801 Palisade Ave., Union City, N. J.

Rush **FREE** Power-Packed Muscle
Building Course. I enclose 10¢ for
handling and postage. (offer
limited to men over 16)

Name

Address

City State Age

In Canada: Write Joe Weider, 4466 Colonial Ave., Montreal, Que.



PREPARE FOR BETTER JOB, BIGGER PAY IN SPARE TIME AT HOME

Today, choose the job you want—and prepare for it in time
you might otherwise waste. Or if you are already in the
work you like best, start training now for quicker promo-
tion and increased pay. During the past 62 years AMERI-
CAN SCHOOL has helped ambitious people to reach higher
goals. Check subject that interests you and mail coupon
for full information.

AMERICAN SCHOOL, Dept. G746, Drexel at 58th, Chicago 37, Ill.

Without obligation, please send **FREE** and postpaid, full particulars
about the subject checked below.

<input type="checkbox"/> Accounting	<input type="checkbox"/> Contracting	<input type="checkbox"/> Mechanical Engineering
<input type="checkbox"/> Apprenticeship Courses	<input type="checkbox"/> Diesel Technician	<input type="checkbox"/> Mechanical Technology
<input type="checkbox"/> Architecture & Building	<input type="checkbox"/> Drafting—Building Trades	<input type="checkbox"/> Metalworking Courses
<input type="checkbox"/> Automotive Technician	<input type="checkbox"/> Drafting—Machine Trades	<input type="checkbox"/> Plumbing—Practical
<input type="checkbox"/> Better Foremanship	<input type="checkbox"/> Electrical Engineering	<input type="checkbox"/> Private Secretary
<input type="checkbox"/> Blueprint Reading	<input type="checkbox"/> Electricity—Practical	<input type="checkbox"/> Retail Merchandising
<input type="checkbox"/> Bookkeeping	<input type="checkbox"/> Electronics—Industrial	<input type="checkbox"/> Salesmanship—Outside
<input type="checkbox"/> Business Management	<input type="checkbox"/> HIGH SCHOOL COURSES	<input type="checkbox"/> Sheet Metal Work
<input type="checkbox"/> Civil Engineering	<input type="checkbox"/> Machinists	<input type="checkbox"/> Tool Making

NAME OCCUPATION
HOME ADDRESS AGE
CITY STATE
Accredited Member NATIONAL HOME STUDY COUNCIL

MAIL COUPON NOW



Superior's New Model 70 UTILITY TESTER® FOR REPAIRING ALL ELECTRICAL APPLIANCES MOTORS • AUTOMOBILES • TV TUBES

As an electrical trouble shooter the Model 70:



- Will test Toasters, Irons, Broilers, Heating Pads, Clocks, Fans, Vacuum Cleaners, Refrigerators, Lamps, Fluorescents, Switches, Thermostats, etc.
- Will test all TV tubes for open filaments, interelement shorts, burned out tubes, etc.
- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, Leakage, etc.
- Will measure current consumption while the appliance under test is in operation.
- Incorporates a sensitive direct-reading resistance range which will measure all resistances commonly used in electrical appliances, motors, etc.
- Leakage detecting circuit will indicate continuity from zero ohms to 5 megohms (5,000,000 ohms).

As an Automotive Tester the Model 70 will test:

- Both 6 Volt and 12 Volt Storage Batteries • Generators • Starters • Distributors • Ignition Coils • Regulators • Relays • Circuit Breakers • Cigarette Lighters • Stop Lights • Condensers • Directional Signal Systems • All Lamps and Bulbs • Fuses • Heating Systems • Horns • Also will locate poor grounds, breaks in wiring, poor connections, etc.

Model 70 comes complete including 64 page book, only... **\$15.85**

**SHIPPED ON APPROVAL
NO MONEY WITH ORDER — NO C. O. D.**

Try it for 10 days before you buy. If completely satisfied then send \$3.85 and pay balance at rate of \$4.00 per month for 3 months — **No Interest or Finance Charges Added!** If not completely satisfied, return to us, no explanation necessary.

MOSS ELECTRONIC, INC.
Dept. D-66 3849 Tenth Ave., New York 34, N. Y.
Please rush Model 70. If satisfactory, I will pay on terms specified. Otherwise I will return tester.

Name _____
Address _____
City _____ Zone _____ State _____
All prices net, F.O.B., N. Y. C.

FINANCIAL HELP TO START YOUR OWN HOME BUSINESS!



Tired of being squeezed between rising prices and a *stationary salary*? Could you use a nice little home-business to bring in *extra income* from your spare time, evenings and week-ends? I can show you *how*—will even *help finance you*, if you're short of cash. Sound unreasonable? Wondering how I can afford to do it? Well, it's simple. The business I'm talking about uses supplies. I *make and distribute* those supplies. So do other firms—but I'm willing to gamble that when your business gets rolling you'll rather do business with a *friend* than with strangers who did not show up until you were in the money. I've gambled the same way with hundreds of others, and it has paid off by helping me build the *biggest business of its kind in the world!* The Golden Rule of "do unto others..." *always works* for those who give it a fair trial.

What is this business? It's *printing without a press*, an amazing process I call "Screen Print." With it, you can turn out printing in *gorgeous coloring* that many big shops cannot duplicate, even with presses costing *thousands of dollars!* Yet my equipment (supplied to you with my instructions) *weighs only a few pounds*, can be set up on a *small table* in the corner of your garage, basement, attic, or even a bedroom. You can earn in a *few hours* to print on paper, metal, glass, plastic, leather, cloth, and about anything you can name — even on curved or round surfaces that ordinary printing presses cannot handle at all! And I show you how to get *big-profit orders* from stores, factories, theatres, schools, and practically every type of business or organization for miles around — even by *MAIL ORDER* coast to coast.



JUST SEND ME YOUR NAME & ADDRESS—NO MONEY
Remember, I'll help finance you, so *don't worry* about the money—whether you are employed or not. I'm *sure* I can help you get set in a home business that may settle your money problems forever. Just send name and address for **FREE** information, without obligation. **TODAY SURE.**

Mr. C. J. Nowak, President, Screen Print Co., Dept. 110, 15127 S. Broadway, Los Angeles 61, California



HIGH WAGES!

High Wages can be yours as an Operating Engineer of heavy construction equipment! Learn **NOW** to operate our diesel engined bulldozers, draglines, cranes, back hoes, scrapers and motorgraders! Machines of major manufacturers are used in our training program. Contractors are on our advisory staff. Contractors need trained operators and pay high wages to our graduates.

We invite comparison and inspection of the nation's original construction equipment operator's training schools. **NEW!** Announcing resident and non-resident courses in Heavy Construction Management. Write for details.

Budget plan available. **VETERANS:** Ask about G.I. Benefits

Write **TODAY** for **FREE** School Catalog, no obligation, to either address

THE NATIONAL SCHOOLS of HEAVY EQUIPMENT OPERATION

Dept. A-24, P.O. Box 8415, Charlotte, N.C.
Dept. A-24, P.O. Box 510, Weiser, Idaho

OWN BERETTA WORLD'S FINEST POCKET PISTOL

Sensational New Low Price Minx 22 Short \$32.00
Featherweight 7 Shot 2 1/4" bbl. Auto

Now it is possible for anyone to handle an automatic pistol without difficulty. Amazing advanced gun design permits loading without pulling back the slide. Hinged barrel may be loaded as single shot.



FREE! Genuine Leather Holster... Minx 4" bbl. \$35.00 (illus.)
Order by Mail Today... Send \$5.00 down, Bal. C.O.D.
GODFREY IMPORT CORP., Dept. PS10 261 Broadway, N. Y. 7

Antique TELEPHONES!

As is complete, decorative purpose \$12.00. Working order, inter-comm \$15.00. Ext. on dial \$17.50, talking circuit only. Write for complete telephone list. All shipments F.O.B. Simpson, Pa.

TELEPHONE ENGINEERING CO.
Dept. 10A9 Simpson, Pa.



GET INTO ELECTRONICS

V.T.I. training leads to success as technicians, field engineers, specialists in communications, guided missiles, computers, radar, automation. Basic & advanced courses in theory & laboratory. Assoc. degree in 29 mos. B.S. obtainable. ECPD accredited. G.I. approved. Graduates with major companies. Start Feb., Sept. Dorms, campus. H.S. graduate or equivalent. Catalog.

VALPARAISO TECHNICAL INSTITUTE
DEPT. 5 VALPARAISO, INDIANA



STOPS OIL BURNING!

**MOTOR
MEDIC**
for MAXIMUM ENGINE POWER

STOP EXHAUST SMOKING!

AT SERVICE STATIONS, GARAGES,
AUTO ACCESSORY STORES

RADIATOR SPECIALTY CO. CHARLOTTE, N. C.





Save 1/2 on NEW ACCORDIONS

Famous Italian Makes at IMPORTER-TO-YOU PRICES

OVER 40 EXCITING
1960 MODELS

for
STUDENTS
TEACHERS
PROFES-
SIONALS

DOUBLE
GUARANTEE

Small Down Payment
BUY ON E-Z TERMS

5-DAY FREE TRIAL

WORLD'S LARGEST ACCORDION DEALER brings you these sensa-
tional values! Prices slashed on all our fine Italian-Made accordions! Here's
your opportunity of a lifetime to play the most popular instrument of all.
Have fun, be a leader! Choose from 40 newest models that lead the world
in superb tone and breathtaking beauty. All latest improvements and fea-
tures. Buy direct from the Importer! **You save up to 50%** off manufac-
turer's list prices. Small down payment; pay the balance on easiest terms.
Big trade-in allowances. Try before you buy on **FREE 5-DAY NO RISK**
PLAN. DOUBLE GUARANTEE!

FREE BONUS GIFTS

for promptness . . .

- Easy-to-play music • Music Stand
- Name in chrome letters
- Deluxe Case • Music Portfolio
- Plus Other Valuable Gifts

MONEY BACK GUARANTEE

See how easily you can own and play a
fine accordion . . . made in Italy by skilled
old world craftsmen. Your satisfaction
guaranteed or your money back. Rush
coupon for big new Color Catalogs and
lowest Importer-To-You discount prices
. . . all FREE. No obligation. Write

**ACCORDION MANUFACTURERS
and WHOLESALERS OUTLET**

P-109, 2003 W. Chicago Ave., Chicago 22, Ill.

FREE! GET COLOR CATALOG and Low Discount Prices

Accordion Manufacturers and Wholesalers Outlet
Dept. P-109, 2003 West Chicago Avenue, Chicago 22, Ill.

Send Free Color Catalogs and Low Discount Prices

NAME _____

ADDRESS _____

CITY _____

ZONE _____

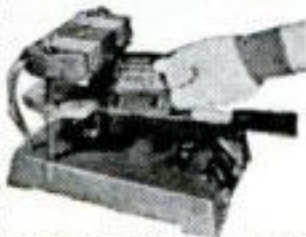
STATE _____

New Table Top Invention Puts You In . . .

PROFITABLE RUBBER STAMP BUSINESS

Home Operators now make
\$9.40 AN HOUR in busi-
ness once monopolized by
a few big companies

Special rubber stamps bring high
prices—cost only pennies to make
on new, low-cost table top machine.
Take 27 cents worth of material,
make perfect stamps, the kind busi-
nesses and offices now buy by the dozen at \$1.80 each. Make
up to \$9.40 an hour. Start in spare time in your own home.
Run machine on kitchen table using ordinary electrical out-
let. Make any kind of stamp. We'll send you free informa-
tion without obligation about this established, highly pro-
fitable business, now open to individuals for the first time.
For free information send name today on a post card to
Rubber Stamp Div., 1512 Jarvis Ave., Dept. R-3-L, Chicago 26, Ill.



OWN a BUSINESS

Be a Specialist in Booming Industry



Get in on the ground floor of a booming
\$750 million a year industry. Fill the need
in your area for safe, effective "on loca-
tion" cleaning of carpets and upholstery.
Every home houses a customer! We'll train
and establish you in **YOUR OWN** lifetime
business! Start part-time if employed. You'll
be trained by a nearby dealer and at 50-hr.
school to get you quickly established. You
provide 6 services to multiply profits. No
shop needed. Just 2 jobs a day nets \$8,750.00
first year. We back you with 27 services:
counseling, nat'l advg. . . McCall's, Parents,
etc., conventions, advg. kits, others. Book-
lets explain everything—no obligation, no
salesman will call. Send for **Free Booklets**.

DURACLEAN COMPANY
9-180 Duraclean Bldg., Deerfield, Ill.

LEARN MEAT CUTTING

AT NATIONAL
Pay After Graduation



The steady dependable trade of Meat Cutting taught
easily in 8 short weeks. **YOU LEARN BY DOING**
under actual meat market conditions in big modern
school at Toledo.

For beginners or men with experience. Get a profit-
able store of your own. Remember **PEOPLE MUST**
EAT! Big pay jobs. Free employment help. Thousands
of successful graduates.

Buying, cutting, percentage, pricing, advertising, sell-
ing, etc. A complete retail meat education. National
School established 36 years. Get National training
NOW. Pay your tuition in easy weekly payments

after you graduate. Send coupon for **FREE** school cata-
log—**TODAY.** G.I. approved.

National School of Meat Cutting, Inc.
Dept. 51-X, Toledo 4, Ohio

Send me your **FREE** school catalog on National Training at
Toledo in Meat Cutting, Meat Merchandising and Self Service
Meats. No obligation. No salesman will call.

Name Age

Address

City State

Approved for Veterans

FREE! LAFAYETTE'S

1960

CATALOG



304 GIANT-SIZED PAGES

CONTAINS

HUNDREDS OF EXCLUSIVE LAFAYETTE ITEMS NOT IN ANY OTHER CATALOG OR AVAILABLE FROM ANY OTHER SOURCE—SEND FOR YOUR COPY NOW!

See the newest and finest in Stereo Tuners, Amplifiers, Cartridges and Music Systems

• TAPE RECORDERS • PUBLIC ADDRESS SYSTEMS • AMATEUR EQUIPMENT • INDUSTRIAL SUPPLIES • RADIO & TV TUBES AND PARTS • INSTRUMENTS • TELESCOPES, BINOCULARS, MICROSCOPES & CAMERAS

Everything in Electronics

The Complete Catalog Featuring The Best Values Obtainable

LEADERS IN HI-FI

OUR

39th

YEAR

The most complete electronic supply catalog crammed full of everything electronic at our customary down-to-earth money-saving prices.

The largest selection of hi-fi components and systems; greatest savings on Lafayette endorsed "best-buy" complete systems.

EASY PAY TERMS AVAILABLE — 10% DOWN — UP TO 18 MONTHS TO PAY

Lafayette Radio P.O. BOX 222 JAMAICA 31, N. Y. DEPT. KJ-9

☐ Send FREE LAFAYETTE Catalog 600

Name.....

Address.....

City..... Zone..... State.....

CUT OUT AND PASTE ON POST CARD

BE A COMMERCIAL

Artist



Learn Illustrating, Cartooning, Figure Drawing, Fashion Drawing, TV Art, etc. At Home, in Spare Time

All for 20c a Day!

PREPARE for a fascinating, profitable Art career this easy, proven way. We supply TWO ARTIST OUTFITS at no extra cost. Our low-cost "teach-yourself" course includes all branches of art listed here. Cash in on demand for trained artists in advertising agencies, newspapers, magazines, TV stations, etc. Make good money part time or full time; free lance or be your own boss. **FREE BOOK** describes our easy method. Send for it. No obligation. No salesman will call. Clip ad, fill in name, address and mail to: Washington School of Art, Studio 1510, Port Washington, N.Y. (Est. 1914)



ONE LOW-COST COURSE INCLUDES:

Commercial Art
Illustrating
Cartooning
Lettering
Fashion Drawing
Landscape
Oil and Water-color Painting

Name..... Age.....

Address.....

City..... Zone..... State.....

56 POPULAR SCIENCE OCTOBER 1959

MEN PAST 40

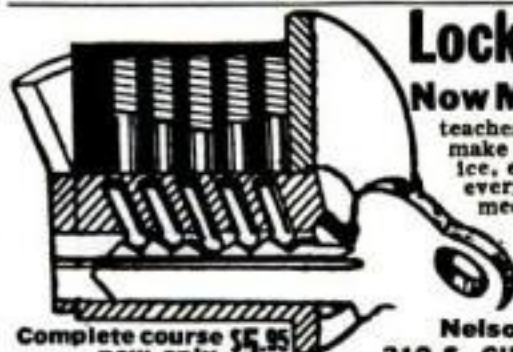
Afflicted With Bladder Trouble, Pains in Back, Hips, Legs, Nervousness, Tiredness.

If you have these troubles, particularly bladder trouble, then your condition may be traced to Glandular Inflammation . . . a constitutional disease. Neglect of this condition often leads to premature old age and sometimes incurable malignancy.

The Excelsior Medical Clinic has a New Free Book that tells how thousands of men have been successfully treated here at Excelsior Springs for Glandular Inflammation by NON-SURGICAL Methods. They found soothing relief and a new outlook in the future of life.

This Free Book may prove of utmost importance in your life. Write Today. There is no obligation.

Excelsior Medical Clinic Dept. B6229 Excelsior Spgs., Mo.



Locksmithing AND KEY MAKING

Now Made Easy! Practical up-to-date course

teaches you how to pick locks, de-code, make master keys, repair, install, service, etc. New self-instruction lessons for every handyman, homeowner, carpenter, mechanic, service station operator, fix-it shop, hardware dealer, gunsmith, 53 easy illustrated lessons. Full price only \$5.95, post-paid; or C.O.D. plus postage. Satisfaction or refund guaranteed.

Complete course \$5.95 . . . now only \$3.95 Nelson-Hall Co., Dept. KR-1 210 S. Clinton St., Chicago 6, Ill.



FREE

MUSCLE BUILDING INFORMATION

Sensational New Methods

Less Time—Less Effort—Better results

BODY-TONE, Box 638-E, North Miami 61, Fla.

MEN WANTED

Earn \$100 Per Week and up
AUTO DIESEL MECHANICS

Master a trade with a future—learn Auto-Diesel mechanics in our shops. You learn with tools on real equipment. Earn while you learn. Many of our graduates earn \$100 per week and up. No previous experience necessary. Day and night courses. Approved for veterans. Write for free bulletin.

NASHVILLE AUTO-DIESEL COLLEGE

226 7th Ave., N., Dept. 41

Nashville 3, Tenn.



Print Your Own

Cards, Stationery, Advertising, Circulars, labels, photo and movie titles, church work, tags, etc. Save money. Sold direct from factory only. Raised printing like engraving, too.

Own a Printing Business

Print for Others, Good Profit. Have home shop. Junior press \$15; Senior \$29 up. We supply everything. Easy rules. Pays for self in short time. Write for free catalog of outfits and all details.

KELSEY PRESSES, C-33 Meriden, Conn.

I'll Send You This Handsome SAMPLE CASE—FREE



and Show You How to Make Up to \$30.00 in a Day

WRITE for this FREE Tailoring Sample Case packed with 100 beautiful, big-value suit and overcoat fabrics. Take orders from friends, fellow-workers, others, for fine quality, made-to-measure clothes. Pocket big cash profits in advance. Because wearing our suits and overcoats brings more orders, we make it easy for you to get your own clothes without 1c cost. No experience is needed. **SATISFACTION GUARANTEED.**

SEND NO MONEY. Rush your name, address, and age—today! **W. Z. GIBSON, INC., 500 South Throop Street DEPT. X-520 CHICAGO 7, ILLINOIS**

World's greatest classified

opportunities

80 DIFFERENT
CLASSIFICATIONS . . .
P. S. SELLS TO ALL

POPULAR SCIENCE MONTHLY
355 LEXINGTON AVE.
NEW YORK 17, N. Y.

Classified Ads only \$1.10 per word insertion, payable in advance. Minimum ad 10 words.
To be included in December issue, copy should be in our office by October 23. No cancellations accepted after October 15. Address orders to O. K. Kelly, Classified Adv. Mgr.

1 AUTOMOBILES & MIDGET CARS

1959 CATALOG on Parts Kits for Golf Buggy or Jr. Sports Car 25c. Indus Corporation, 1815 Madison, Indianapolis.

AUTOMOBILE Literature Clearance. Several Years And Makes. Perfect Condition. Catalogues 5 For \$2.00; Authentic Old Advertisements 3 For \$1.00. No Listings At These Prices. Brassard, 176 St. Charles, Jonquiere, Que., Canada.

CROSLEY or Foreign car parts catalogue. Parts discount club. Box 7, Elmont, New York.

AUTOMOBILE books. All types. List free. Kennedy Publishing, Box 221, New York 16, N. Y.

HUNDREDS of automobile catalogs—American, antique, foreign; dealer books, glossy photographs, shop manuals; free motor magazines listed by non-profit organization. Write immediately; get on free mailing list. Auto Maniacs, Stockbridge, Michigan.

2 AUTO SUPPLIES & EQUIPMENT

SAVE money on Jeep and army truck parts. Large inventory. Catalogs for Jeep and G.M.C. owners. American Auto Parts Co., 1830-PS Locust, Kansas City, Missouri.

GIANT Auto Parts Catalog. Thousands Special Accessories Stores Don't Handle . . . Gadgets, Custom Equipment. Send 25c (Refundable). Newhouse Automotive Industries, 5805-PS-10 Beverly, Los Angeles 22, California.

AUTO shop welding repair training in world's largest non-profit school. Low tuition. Free booklet. Hobart Welders, Box P-1091, Troy, Ohio.

1959 EDITION. It's New! It's Different! Get world's largest auto accessories and parts catalog, save up to 50%. 356 pages, over 100,000 items for 1920 to 1959 models including Hollywood accessories, custom styling and Hi-Speed Equipment. All parts and accessories for all cars and trucks. We have that hard to get part. Jam packed with bargains. Completely illustrated. Send 25c (refundable). J. C. Whitney, 1919 PS-10 Archer, Chicago 16, Ill.

CRANKSHAFT Grinder. Hand operated. Makes bearings fit without taking engine apart. \$4.00. Literature. D. McGee, 719 Cascade St., Wenatchee, Wash.

PARTS—Model A—Free List. Matco, Box 135, San Pedro, Calif.

STEERING Wheels—Midgets, etc. \$3.95 up. Literature 10c. Steerite Products, Dept. PS8, Box 221, Long Branch, N. J.

"RING-Valve Job" while driving, \$6.00 postpaid. (8th successful year—over 1,000,000 satisfied users.) Yellow Cab test-proven. Free details. Motaloy, Grantham 27, Penna.

SIRENS, Air Horns, Lights, etc! Catalog 10c. MacCanna, Tarrytown, N. Y.

50,000 MILE Guarantee. New Fuel Pumps. Single \$5.95, Double \$9.95. Postpaid. Give Car, Year, Model. Ram Fuel Products, P. O. Box 4141, Newark 12, New Jersey.

"RING-Valve Job" while driving. "Lachapelle's." Only \$3.00 delivered. "World's only (patented) product of its kind." Over fourteen successful years. Money back guarantee. Free information. Joe Dillon, National Distributor, Box 323-A, Bridgeport, Ohio.

CHEVROLET V8 engines. Racing equipment. Catalog 50c. Ledbetter Enterprises, 1015 17th, Texarkana 8, Texas.

USE THIS HANDY INDEX TO FIND WHAT YOU WANT

Advertising, Agencies for Advertisers . . .	53
Agents Wanted . . .	43
Antiques, Relics & Indian Goods . . .	29
Astronautics . . .	5A
Authors Service . . .	52
Auto Supplies & Equipment . . .	2
Auto Trailers . . .	3
Automobiles & Midget Cars . . .	1
Aviation . . .	5
Boats, Outboard Motors . . .	11
Body-Building Courses, Jiu Jitsu, Etc. . .	12
Books & Magazines . . .	23
Business Opportunities . . .	37
Buy It Wholesale . . .	38A
Cameras, Photo Supplies . . .	34
Camping Equipment & Tents . . .	16
Cartooning, Sign Painting, Chalk Talks . .	54
Coins & Currency . . .	26
Contests . . .	46
Detectives . . .	47
Do-It-Yourself . . .	66
Dogs, Birds, Hamsters & Pets . . .	17
Educational & Instruction . . .	45
Electrical Supplies & Equipment . . .	7
Engines, Motors, Etc. . .	10
Farm Machinery . . .	10A
Farms, Other Real Estate . . .	19
Field Glasses, Telescopes . . .	14
For Inventors . . .	60
For Sale Miscellaneous . . .	71
For the Home . . .	69
Formulas, Plans, Etc. . .	39
Geiger Counters, Treasure Finders . . .	77
Help Wanted Reports . . .	42
High-grade Salesmen . . .	44
Hobbies, Collections . . .	31
Home Craftsman . . .	65
Hypnotism . . .	24
Inventions Wanted . . .	61
Jokes, Games, Novelties, Etc. . .	24A
Language Outfits . . .	48
Live Bait . . .	18
Machinery, Tool Supplies, Etc. . .	9
Magic Tricks, Puzzles, Etc. . .	25
Minerals & Precious Stones . . .	30
Miscellaneous . . .	79
Models, Model Supplies . . .	64
Money-making Opportunities . . .	38
Motion Pictures, Slides, Sound Equip. .	33
Motorcycles, Bicycles & Supplies . . .	4
Music, Song Writers & Records . . .	35
Of Interest To Women . . .	70
Old Gold, Jewelry, Watches . . .	67
Personal Photo Finishing, Photocopies, Etc. .	80
Plastics . . .	32
Printing, Multigraphing, Etc. . .	47
Printing Outfits, Supplies . . .	58
Profitable Occupations . . .	22
Radio, TV, Supplies & Equipment . . .	36
Razor Blades, Shavers . . .	74
Remailing Service . . .	80A
Rubber Stamps & Office Supplies . . .	56
Science & Chemistry . . .	41
Sporting Goods, Guns, Fishing Tackle, Etc. .	15
Stamp Collecting . . .	28
Swap . . .	79B
Tattooing Supplies . . .	75
Taxidermy . . .	13
Trees, Shrubs, Roots & Herbs . . .	20
Trigonometers . . .	9A
Typewriters & Office Machines . . .	55
Wanted to Buy . . .	72
Watch Repairing . . .	78
Welding, Soldering . . .	8
Western Merchandise . . .	79A

3 AUTO TRAILERS

BUILD Expanding eight foot trailer. Accommodates five. Literature 10c. Framar Company, Wilmington, Massachusetts.

4 MOTORCYCLES, BICYCLES AND SUPPLIES

RECONDITIONED Motorcycle Motors. Chrome accessories. Complete stock Indian parts. Expert rebuilding. Fast service. Indian Motorcycle Sales, Kansas City 27, Missouri.

MIDGET car \$15, Cushman motorscooter \$15, less engines. Whizzer engine \$10, Briggs \$5. Whizzer motorbike \$25. Servicycle \$45. (mailorder only). Send 25c (35c for First Class Mailing) for Directory-Catalogue Number 91, listing these and hundreds of other Bargains in midget cars, motorscooters, homebuilders parts, plans, etc. Midget Motors Directory, Athens, Ohio.

MOTORSCOOTER \$6.00; Indian Motorcycle \$30.00; Whizzer \$7.50; Briggs (Kick Starter) \$12.75. Send 25c (35c first class mail) for catalog #33 jammed with sensational bargains in motors, motorscooters, midget cars, motorbikes, construction plans. Gail, 1313 Jefferson, Toledo, Ohio.

5 AVIATION

FLYING Platform. Three Drawings. \$2.00. Rotron, Box 573-N, Bellflower, Calif.

HELICOPTER, Kits, Plans. Free Brochure. Adams, Box 6042-N, Lakewood, Calif.

HOMEBUILT Helicopter Handbook. Homebuilt Helicopter Directory. Homebuilt Airplane Directory. \$1.00 Each. Urshan, Box 4332 N.P., San Diego 4, California.

RAMJET Helicopter—build inexpensively. Plans only \$1.00. Wooster Engineering, Box 259, Wooster, Ohio.

PROPELLERS, plans, supplies for airboats and snowplanes. Latest designs, prompt delivery. Catalog 25c. Banks-Maxwell, Box 3301G, Ft. Worth 5, Texas.

DUCTED fan design. Used in Air Sleds and flying platforms. Specifications and 6 pages of drawings. \$2.00. Tyna-Turbine, Box 11258, Phoenix, Arizona.

AIR Sled Plans. 7 views, photos \$5.00. Aeromobile, Neponset, Illinois.

5A ASTRONAUTICS

ANTI-Gravity Engine—complete details plus "Man in Flight" \$1.00. Blanchard, 2900—9th Street, Rock Island, Illinois.

GRAVITY latest undisclosed theories and information \$1.00. G. and P. Research Lab., Box 674, Bristol, Tennessee.

7 ELECTRICAL SUPPLIES & EQUIPMENT

REWIND motors yourself. Simplified Instructions and parts catalog \$1.00. Modern, Box 8715, Kansas City 14, Mo.

LAMP parts. Wholesale. Thousands of items for repairing, converting. Catalog 25c. Brown Lamp, Box 305-D, Clayton 5, Missouri.

APPLIANCE Parts—Accessories Wholesale. New Enlarged Catalogue 25c. Seco, 26 South 20 Street, Birmingham 3, Alabama.

BOOK 200 Electric Stunts \$1.00. Cuttington, 26278 Arastradero, Los Altos, California.

8 WELDING, SOLDERING

ELECTRIC Arc Welders—four sizes. Lorson Electric, Inc., Hope, Kansas.

MAKE Difficult Welding Jobs Easy—New, copyrighted, illustrated booklet tells how. Send 25c in coin to Arcair Co., Box 431, Lancaster, Ohio.

ACETYLENE Welding Outfits new \$64.50. Arcwelders \$56.50; Eagle Welding, Dept. 42, 5065 Broadway, Chicago 40, Ill.

WELDERS, 110-220. Welds 1/2". \$39.50. Morris, 1070 Inner Drive, Schenectady, New York.

9 MACHINERY, TOOL SUPPLIES, ETC.

METALS—Plastics—Rough Or Fabricated. Supplier, Box 35B, Bloomfield, N. J.

DEWALT powershops complete with accessories, special price. T-C Hardware Co., 16548 Hamilton, Detroit 3, Mich.

NEW design machinist tools. Write Campbell Tools Co., 1424 Barclay, Springfield, Ohio.

9A TRIGONOMETERS

ENGINEERS, Draftsmen, Students: Triangulator Makes Trigonometry Easy. \$1.25. No C.O.D. Trical, Box 67, Buffalo 15, New York.

10 ENGINES, MOTORS, ETC.

DIESEL Injector Parts and Fuel Pumps Wanted GM53-71-110. Mayer, 7120 Carnegie, Cleveland 3, Ohio.

REWIND Motors Yourself. Complete Instructions, \$1.00. Lewis Mfg., Howell 11, Michigan.

ENGINES. Go-Karts Racers. Hardware Catalogs 10c. Loren Products, Danville, Illinois.

10A FARM MACHINERY

SENSATIONAL Garden Tractor. Hoes between plants and rows, including strawberries. Eliminates hand hoeing. Standard in size, yet entirely different. Patent 2742840. Also tills. Fantastic offer to first few inquiries. Auto Hoe, DePere 69, Wisconsin.

11 BOATS, OUTBOARD MOTORS

NEW, used, rebuilt marine motors. Marine conversions, fittings. Free Catalog. Stokes Marine Supply, Dept. 23, Coldwater, Mich.

KIT Boats in molded Fiberglass or pre-assembled plywood. 50 Guaranteed models. \$41.75 up, freight paid, easy terms. Free catalog includes hardware, fiberglass supplies, trailers. Luger Boats, Dept. K-10, Minneapolis 20, Minnesota.

FULL size, cut-to-shape boat patterns, blueprints, 7 1/2-38 feet. Big new 88 pg. illustrated "Build a Boat" Catalog of Naval architect-designed Cruisers, Runabouts, Skiffs, Outboard Boats, Sailing, Racing, Houseboats, 50c. "How to Build a Boat" Booklet, \$2.50. Hardware & Equipment Catalog, \$3.00. Cleveland Boat Blueprint Co., Dept. A-77, Box 1651, Cleveland, Ohio.

BOAT Plans—Full Size Patterns—Frame Kits, Modern Inboards and Outboards for amateur builders. Complete New Catalog 50c or specify requirements. Glen Marine, 9152 Rosecrans, Bellflower, Calif.

SAVE Money. New, used outboard motor parts. Send wants. Stamp appreciated. Outboard Motor Mart, 229-M State, Boston 9, Mass.

SAVE! Save! Save! World's Finest Boat Kits—25% less! Satisfaction Guaranteed! Write for free color catalog. Dept. PSM-1059, Taft Marine Woodcraft, 636 39th Ave., N. E., Minneapolis, Minnesota.

FIBERGLAS Boat Covering, wholesale prices. Free literature and samples. Seifert's, Box 31X, DePere, Wisconsin.

12 BODY-BUILDING COURSES, JIU JITSU & ATHLETIC EQUIPMENT

BUILD powerful arms, chest, shoulders! 22 exercises, \$1. Fonsad, Box 601-C, 1100 Market, Wilmington 99, Delaware.

DEADLY Oriental Fighting Art—Elemental Karate Kung-Fu, illustrated Manual \$3.98. Oriental Book Sales, P. O. Box 1183, Oakland 7, Calif.

OLYMPIC Barbells, \$29.95 up. Courses, booklets, 10c. Jackson Barbell Company, Springfield, N. J.

BARBELLS. Exercise Equipment, Booklet, Health, Strength, Physique 10c. Reading Barbell Co., Reading, Pennsylvania.

PUSHED around? Don't take nonsense from bullies. Surprise them. Easy when you know Police Jiu Jitsu. Complete fully illustrated course in one volume as taught police and armed forces. Send \$1 now. Satisfaction guaranteed. Books Publishing Co., Amityville 39, New York.

BIG Strong Healthy Muscles 4 Courses only 25c. 12 Courses \$2.00. Health Wisdom Courses \$1.00. Personal Supervision. Agents Wanted. Results fully Guaranteed. Sid's System, PS-2, Southgate, California.

FREE Muscle building information. Bodytone, Box 638A, North Miami, Florida.

BARBELLS, Dumbbells, Courses, Apparatus. Booklet 10c. Good Barbell Co., Siloam Springs, Arkansas.

13 TAXIDERMY

FREE Book Tells How You Can Learn Taxidermy and Tanning. Fascinating, profitable Hobby! Send Postal. No Obligation. State Age. Northwestern School, Dept. 2672, Omaha 2, Nebr.

14 FIELD GLASSES, TELESCOPES

DYNASCOPE—Amazing world famous reflector telescope. Request free brochure. Criterion, Dept. DS-65, Hartford, Conn.

FREE Catalogue! Thousands war surplus optical bargains. Lenses, Prisms, Telescopes, Binoculars, etc. Send \$1.00 for 10 Lens Hobbyist Set and Project booklet. G. Jaegers, 691 West Merrick Road, Lynbrook, New York.

BINOCULARS, Telescopes, Microscopes. Terrific values \$3.98 up. Request free money-saving catalog. Criterion, Dept. S-83, Hartford, Conn.

WAR Surplus bargains! Millions of lenses, instruments, telescopes, binoculars, components and complete line of astronomical telescope items. World's greatest optical market place! Send only \$1.00 for beginner's 10-lens kit and big instruction booklet Stock 2-CN. Write for catalog-CN Free! Edmund Scientific Co., Barrington, New Jersey.

BUILD your own Reflector Telescopes, complete kits; Mirrors, Eyepieces, Tripods, all other accessories. Request free illustrated literature. Criterion Manufacturing, Dept. KP-58, Hartford, Conn.

AMAZING prices, precision binoculars. Folder "Binocular Selecting," catalog free. Dealers also write. Prentiss Importers, Mercury Bldg., West Los Angeles 25, Calif.

TELESCOPE Mirrors, lowest prices, finest quality. Free bulletin. National Optical Company, 505 New York Avenue, Union City, New Jersey.

BINOCULAR Specialists, all makes repaired. Authorized Bausch & Lomb, Zeiss, Hensoldt, Bushnell dealer. Tele-Optics, 5514 Lawrence, Chicago 30, Illinois.

REFLECTING Telescope completely assembled. 60X. Guaranteed Observatory clearness. Free information. The Skyscope Co., P. O. Box 55, Brooklyn 28, New York.

TELESCOPES, binoculars, microscopes—all sizes. Complete telescope kits, parts, accessories. Free illustrated catalog. Suffolk Science, Mattituck, New York.

STAR—Atlases, astronomical books, free list. Herbert Luft, 69-11 229th St., Flushing 64, N. Y.

COLLAPSIBLE binoculars 2x25, case fits pocket \$2.00 ppd. Hubbard, 1643 Lyola, Benton Harbor, Michigan.

15 SPORTING GOODS, GUNS, FISHING TACKLE, ARCHERY, TRAPPING

100,000 PRODUCTS Wholesale — Free catalog! Send postcard: Econ-O-Mart, Whippany 16, New Jersey.

FREE . . . Wholesale Catalog. Beads, Spinners, Lure parts, Sinkers molds, Jigs, Reels, Finnyports, (PE), Toledo 6, Ohio.

CROSSBOWS! Hunting—Bows! Factory Prices! Jayco, Box 1355, Wichita, Kansas.

6-SHOT Colt Revolver. 22 Cal. Short Ammunition. No blank. \$12.50. F.O.B. Chicago. Import Associates, Dept. PS8, 185 N. Wabash, Chicago 1, Ill.

10,000 GUNS!!! — Antiques, Moderns, Swords, Armour—every description. Giant Catalog \$1.00. Agramonte's, Yonkers 2-A, N. Y.

MOLDS for Fisherman's Sinkers, Jigs, Squids, Casting and Spinning Lures. Free Catalogue. Sweet's Molds, Tonawanda 3, New York.

5,000 BARGAINS, firearms, binoculars, war relics, catalog 50c. Smith Museum, Runnemede, N. J.

BOOMERANGS—Guaranteed to return after being thrown. Wonderful for outdoor sportsman—unique decoration man's den. Only \$2 each from—Nixon Co., Box 4063-T, G. P. O., Sydney, Australia.

JAP rifles altering American shells \$6.00. Jap shells \$3.95, catalog 10c. TP Shop, West Branch 10, Michigan.

BIG profits making fishing lures and equipment. Free details. TriAlpha, 7950 Mammoth, Dept. J30, Van Nuys, Calif.

16 CAMPING EQUIPMENT & TENTS

CAMPING Equipment, the most unusual, imaginative, practical Christmas gift. Send for free Christmas camping gift catalogue (Print name-address). Morsan, 10-15G 50th Avenue, Long Island City 1, New York.

17 DOGS, BIRDS, HAMSTERS, RABBITS & PETS

RAISE Angora, New Zealand Rabbits on \$500 month plan. Plenty markets. Free details. White's Rabbitry, Delaware, Ohio.

RAISE Rabbits—Most profitable way! Particulars free. Grinsteads, Edwardsville, Illinois.

CHICK-U-BATOR. Hatch live healthy chicks in any room of your home. Comes complete with fertile egg, thermometer, humidifier, egg cradle, air tube, illus. hatching guide. Watch entire hatching process through transparent dome. Absolutely no mess. Money back guarantee. \$6.00 postpaid. Dept. S, Kellart Co., 166 Geary, San Francisco 8, Calif.

18 LIVE BAIT

FREE Literature—Big money raising fishworms and crickets. We teach you how to raise and sell. Breeder redworms—\$4.00 per 1000, postpaid with raising and marketing instructions. 5000—\$17.50. Medium size—10,000—\$19.95. Carter Farm-12, Plains, Georgia.

AFRICAN Giant Earthworms, 100—\$2.00, 500—\$7.00. (Dealers Quoted.) Ozark Worm Farm-V, Willow Springs, Missouri.

19 FARMS, OTHER REAL ESTATE

FLORIDA—Nice homesites, \$345 at \$10 monthly. Folder Free. Winfree Vernor, DeLand, Florida.

STROUT Catalog Free! 3,549 Bargains described. 36 States. Coast-to-Coast. Farms, Homes, Businesses. World's Largest! 59 Years Service. Strout Realty, 251-ZB 4th Ave., New York 10, N. Y.

LOUISIANA land—Business or residential. Sportsman Paradise. E. Bondurant, Box 265, Wisner, Louisiana.

FLORIDA—Beautiful, wooded homesites —\$290—\$10 monthly. Free literature. Douglas Wood, Fountain, Florida.

20 TREES, SHRUBS, ROOTS, HERBS

GINSENG, Goldenseal. Roots bring up to \$14 pound. Full information. F. G. Collins, Viola, Iowa.

22 PROFITABLE OCCUPATIONS

EARN Money At Home raising fishworms for us! Backyard, garage, basement. We buy your crop! Inquire. Oakhaven-7, Cedar Hill, Texas.

BARGAINS! Save Money! Buy wholesale! Catalog general merchandise, 10c. Norris, 487-YM Broadway, New York City.

\$5000 FROM Half Acre growing Ginseng, crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

VENDING Machines—No Selling. Operate A Route of Coin Machines and Earn Amazing Profits. 32-Page Catalog Free. Parkway Machine Corporation, Dept. 17, 715 Ensor Street, Baltimore 2, Maryland.

TREE-mushroom pioneers! Spawn, Instructions, \$1.00. Ohga, PS-163, Sigakenkusatu, Japan.

BECOME independent with your own franchise business. Thousands earning handsome incomes. Request interesting facts today. National Franchise Reports, PS-528, 333 North Michigan, Chicago 1.

FREE Literature — Make Big Money Raising Fishworms and Crickets. Carter Farm-10, Plains, Ga.

LEARN Piano tuning at home. Free information. American School Piano Tuning, Box 707, Gilroy, Calif.

23 BOOKS & MAGAZINES

GOOD Used Books, 50c-\$1. Free Lists. Editions, Dept. PS, Hempstead, New York.

BRITISH Book Bargains. Any subject. Catalog free. Transbooks, Box 1-PT, Wantagh, N. Y.

BARGAINS. 8 Books Including Large Issues \$1.00. Amazing Samples 30c. Persil, 436 N. Y. Ave., Brooklyn 25, N. Y.

FREE Catalog! 10,000 books, records! Treasure-Site, 6990 Aberdeen, Upper Darby, Penna.

SCIENCE-Fiction Book Bargains. List 10c. Werewolf Bookshop, Verona 1, Pennsylvania.

TECHNICAL & Scientific Books & Journals. (Chemistry, Physics, Engineering). Send wants. Catalogues free. Mapleton House, 5412 16th Ave., Brooklyn 4, N. Y.

100,000 BOOKS—10c each! Thousands titles! Sensational subjects! Three catalogs, (Books-Bargains), 25c, refundable. Particulars free! "Bargains," 1323-PS Chaparral, Corpus Christi 2, Texas.

BOOKHUNTERS: All Subjects. Send Wants! Jaher Book Service, 183 Hazelwood Drive, Westbury, New York.

BOOKS, old and new, on all subjects. Free catalog. Naboma, Box 20725, Los Angeles 6, California.

1,000,000 BOOKS—10c each! Every subject under the sun! 2 catalogs—120 pages—dime! Modern Mailway, Box 124-PSS, Stuyvesant Station, New York City 9.

FREE Catalog. Latest Books. All Subjects. Shorelands, Dept. BC, Plaistow, N. H.

24 HYPNOTISM

HYPNOTIZE Self Others while asleep with amazing hypnotic phonograph records, tapes. Catalog free. Research Association, Box 24-G, Olympia, Washington.

FREE Illustrated Hypnotism. Selfhypnosis Catalogue. Write: Hypnotist, 8721 Sunset, Hollywood 46P, California.

FREE Catalog! Hypnotism, Autohypnosis! Books, Tapes, Records! Drawer PS697, Ruidoso, New Mexico.

XRAY Mind! Hypnotize, one glance. Guaranteed \$3.00. Wamsteker, Box 10, Ottery, Cape, South Africa.

WHIRLING Hypno-Coin, hypnotize others in minutes with this fascinating plastic invention. Complete with revealing secrets, instructions. Only 99c. Money back if not delighted. Hypnotic Aids, PS-10, 1133 Broadway, New York City 10.

HYPNOTISM: Autosuggestion. Guaranteed home study courses. Diploma issued. Free brochure. School Applied Hypnology, Dept. B10-200 West 57th Street, New York 19, N. Y.

"X-RAY Glance." Entire course. Adults. \$2. Hypnomaster, Box 9309-XH, Chicago 90.

"HYPNOTIZE . . . One word . . . One fingersnap," on stage. Satisfaction—or refund. \$2. Hypnomaster, Box 9309-S6, Chicago 90.

HYPNOTIZE Successfully! "One Word," "Instantaneous," "Against Will" Methods Exposed! Complete Illustrated Course—Including "Secret Nerve Pressure Technique" \$1.00. Arthur Fowler, Box 439, Woodbury, New Jersey.

TELEPATHY!!!! Hypnotize!! Mind-read!! Demand distinction, wealth!! Paralyzing Gaze!! Hypnotize secretly 8 attacks!! Knockout Story!! "Experts Secret Method" . . . 7 More!! Guaranteed \$2.99. Minter, Box 32P, Thiensville, Wisconsin.

GET 100% results using "Hypnoid" instrument, 45 dollars shipped. Details free. Copen, Nairdwood Lane, Prestwood, Bucks, England.

24A JOKES, GAMES, NOVELTIES, ETC.

3100 NOVELTIES. Jokes, tricks, gadgets, funmakers, hobbies. Big catalog 10c. Johnson-Smith, D-497, Detroit 7.

FLUB-It-Yourself Kit—For The "Handy" Man Who Has Made Everything Else: A Kit From Which Absolutely Nothing Can Be Built! (Except Perhaps A Water-Cooled Electronic Figliggie.) Great Gift! Enough To Drive A Man Sane. Lots Of Fun! \$1.00 Ppd. Outdoor Industries, Dept. J. R.4, Excelsior, Minn.

COMPLETE Packaged party favors. Make parties more fun. Free brochure. Melmart, 5837 Carlton Way, Hollywood 28, Calif.

25 MAGIC TRICKS, PUZZLES, ETC.

WORLD'S finest professional magic Joker novelties. Giant illustrated catalog 10c. Top Hat, Evanston 13, Illinois.

WIN, Dice, Cards, Catalog 10c. Book, Box 671, St. Louis 1, Missouri.

500 TRICKS—1959 Edition now ready! Contains latest, best magic for pocket, club, stage. Only 10c. Douglas Magicland, Dept. 12, Dallas, Texas.

1000 WORLD'S Greatest Tricks, Jokes, Magic! Big Giant Catalog 160 Pages—only 25c Free Card Trick! House of 1000 Mysteries, 202-72 Pinewood, Trumbull, Conn.

3000 TRICKS, pocket, parlor, stage. World's Finest Magic Catalog (408 pages). \$2.50. Kanter's, S-1311 Walnut, Philadelphia 7.

MAGICIANS' Headquarters. Catalog 25c. Hocus Pocus, 209 West Capitol, Jackson, Mississippi.

MAGIC Tricks Book \$1. Be Party Live-wire. Free Catalogue. Mandel, 1200 Avenue H, Brooklyn 30, New York.

MAGIC catalogue 25c. Eagle magic, 713 South Third Avenue, Minneapolis 2, Minnesota.

CHEMICAL Magic Kit, Includes chemicals, instructions, 50c. Kits, 1451 Drake, San Pablo 10, California.

26 COINS & CURRENCY

\$4,000.00 FOR 1913 Liberty Head Nickel. We paid \$6,500.00 for 1794 Dollar. Wanted Certain Others Before 1904. 1870-S—\$3.00 Gold Worth \$25,000.00. Others Fine pay \$60.00 to \$2,500.00. Certain—Lincoln Cents 1909-1955—\$20.00—\$175.00; Indian Cents \$225.00; Dimes 1894-1942—\$25.00—\$3,000.00; Quarters 1896-S—1923-S—\$20.00—\$600.00; Half Dollars 1838-O—1928—\$95.00—\$3,000.00. Hundreds of others worth \$10.00 to \$3,000.00. Canadian Coins—1921-5c Silver \$100.00. 1889-10c \$100.00. 1921-50c \$750.00. For complete allcoin information, before sending coins, purchase for \$1.00 our large illustrated guarantee buying-selling Catalogue. Catalogue Dollar refunded. \$20.00 sale. Werthycorin Corporation (K-409-C), Boston 8, Massachusetts.

COINS from Formosa, Vatican, etc., plus foreign banknote, 10c with coin approvals. Littleton Coin Company, Littleton 82, New Hampshire.

EIGHTEEN Different Indianhead Cents \$2.00. Bargain Lists Free. Sayers, 1000 Unaka, Johnson City, Tennessee.

LIBERTY Nickels Ten Different \$1.70. Jefferson 1938, 1938D, 1938S, 1939S, 1942D, 1943D, 1946S, 1950, 1954S. Five Different \$1.00. Nine Different \$1.60. Schoenkes, 061 Walnut, Mundelein, Ill.

IS There A Coin In Your Pocket Worth \$200? See Gimbels ad on page 43.

LINCOLNS, 25 Different, 1909-1939. \$1.50. Very Few 30s. DeWolf, 2041 Manchester, Cardiff, California.

BRILLIANT Proof sets—1959 \$3.00; 1957 \$3.15. Ghana (in box) \$10.50; Queen Elizabeth Coronation \$11.95. Roosevelt dime set Brilliant Uncirculated (in album) \$19.75. Retail Guidebook \$1.75. World Coin book \$4.00. Canadian Guidebook \$1.50. Gigantic Bargain Catalogue, \$1.00 (Deductible first \$10.00 order). Bebee's, 4514 North 30th, Omaha 11, Nebraska.

INDIAN Cent plus Bargain Lists 10c. Hutchinson's, Box 4747, Philadelphia 34, Penna.

COIN Magazine, 200 pages. Sample 40c. Numismatic, 7320 Milwaukee, Chicago 31.

RAREST CC Mint Dollar, 1885 Unc. \$6.00. 100 Pg. Illustrated Catalogue 50c. Shultz, Salt Lake City 10, Utah.

COMPLETE U.S. Coin list, 10c (Refundable). Bonus offer included! Economy Sales, 156-C Dean, Mansfield, Massachusetts.

EIGHT Different Indian Cents \$1.00. Collector's Bargains, Box 356A, New Hope, Penna.

THREE Brilliant Uncirculated Mexican Silver Dollars \$1.00. Universal Services, Box 675, San Antonio 6-A10, Texas.

NUMISMATIC'S Largest Newspaper. Semi-Monthly. Sample 25c. \$2.00 Yearly. Numismatic News, Washington Street, Iola, Wisconsin.

INDIAN Cent With Price List 10c. R&M Coins, Delanco, New Jersey.

FREE List! U.S. Coins. Lowest Prices. Hugh's Coins, Hickory, North Carolina.

20 DIFFERENT Foreign coins, 5 Canadian cents, and 5 Brilliant Lincoln cents \$1.00. Catalog free. Joray's, Shouns, Tenn.

SIXTEEN page price list of USA and Canadian coins free. Selling prices on thousands of coins and supply items. Bryson Inc., 612A White, Toledo 5, Ohio.

U.S. coin list 10c Contains over 100 illustrations; over 5,000 delightful bargains. Stoney, 260 Washington, Boston 8, Mass.

LINCOLN Cents—1923-S, 1924-S, 1921-S, 1925-S, 1920-S, 1917-S, 1918-S, 1919-S, 1927-S, 1928-S, 1932-D, 1938-S; Complete lot only \$3.00. Berry, Box 306, Westminster, California.

28 STAMP COLLECTING

UNITED States commemorative collection containing 33 different—10c. Approvals. White, 516-W Avenue L, Brooklyn 30, New York.

225 STAMPS For only 10c! This mammoth value includes Airmails, Pictorials; stamps from strange Countries cataloguing up to 25c each! Also Approvals. Mystic Stamp Company, Camden 55, N. Y.

307 WORLDWIDE different stamps only 25c. Approvals. Niagastamp, St. Catharines 672, Ontario.

WOW! 110 All Different Germany 10c Zeppelins. Semi-Postals, Airmails, High values, etc. Giant Catalog, bargain lists included with beautiful approvals. Jamestown Stamp, Dept. A109PS, Jamestown, N. Y.

103 DIVERSIFIED British Colony Stamps only 10c. Approvals. Niagastamp, St. Catharines 672-A, Ontario.

AMAZING Offer! 200 U.S. stamps—including commemoratives, airmails, high denominations to \$1.90—only 10c to Approval Applicants!! Illustrated Bargain Lists free. Mystic Stamp Co., Dept. 55, Camden, New York.

ALBUM only 10c! Hundreds of spaces! Stampmart Company, Hartford 1, Connecticut.

102 DIVERSIFIED Worldwide stamps 10c. Approvals. Linstamp, St. Catharines 619, Ontario.

80 DIFFERENT U.S. Stamps. Includes 19th Century. Commemoratives. High Values. Plus 1943 Flag Stamp of occupied Nations. All for only 25c. Approvals included. Willett Co., Box 338-Y, Yorktown Heights, N. Y.

NUDES set (4)—Unusual Approvals 10c. Atlas, Eisenhower, Racine, Wisconsin.

FREE! Giant Bargain Catalog—New Edition listing thousands of bargains including U. S. and B. N. A. stamps, packets, mixtures, albums, accessories and supplies; sent with beautiful approvals. Jamestown Stamps, Dept. E109PS, Jamestown, N. Y.

25 DIFFERENT large American Commemoratives 10c. With approvals. Linstamp, St. Catharines 619-A, Ontario.

1000 DIFFERENT Worldwide Stamps \$1.00. Valued over \$20.00. Universal, Box 6, Kenosha 6, Wisconsin.

WORLDWIDE, 50 all different, absolutely free, just to introduce our incomparable approvals. Kent Stamp Company, GPO Box 87, Brooklyn, New York.

105 DIFFERENT U. S. stamps 25c. Approvals included. Shelron, Box 907-S, New York 8, N.Y.

INTERESTING Worldwide Animal stamp collection 10c. With approvals. Niagastamp, St. Catharines 672-B, Ontario.

FREE! Eight Sided stamp, Triangle, Diamond, Midget Mammoth, to approval buyers. Plymouth, Dept. A-3, Bell, California.

100 DIFFERENT Stamps, 10c with approvals. Smith, 508U Brooks, College Station, Texas.

GIANT-Size Issues Collection: Laos Elephant set, Brussels Fair, Olympics, Jet Aircraft, Boy Scout, Somali Animals complete, Romania Flags, Togo set, Diamond Popes, U. N. set, etc. plus big Stamp Dictionary and Approvals. Everything 10c. Stampex, Box 47-KP, White Plains, N. Y.

100 DIFFERENT Belgium Free. UPU, Brussels Fair, Railroad Stamps Free. Approval Applicants Only. Trylon, Box 2487, Orlando, Florida.

DEALER, Swapper, Trader Buy For Less. Write Smith Company, Box 18-PS, Halfwaytree, Jamaica, West Indies.

LAOS—Beautiful Giant-Size Multicolored Mint "Elephant" Stamps, 10c. Approvals. Gebhard, 26A Westwood Drive South, West Orange, N. J.

TOPS! Free book, "How To Collect Stamps." Send for your copy today! Approvals. Littleton Stamp Co., Littleton E2, N. H.

77 DIFFERENT U.S.—25c Approvals. Utechs, 1143A North Keeler, Chicago 51.

TERRIFIC Stamp Bargain! Israel—Iceland—Vatican Assortment—plus exotic triangle set—Also fabulous British Colonial Accumulation—Plus large stamp book—all four offers free—Send 10c to cover postage. Empire Stamp Corp., Dept. PR, Toronto, Canada.

RUSSIA 28 Diff. Unused 15c! David Bailey, Box 5021, Los Angeles 55, Calif.

66 DIFFERENT, United States, British, French, Spanish Colonies, Triangle, Etc., 10c. Worldwide Approvals. Telic-Arts, Milford, Connecticut.

EXCEPTIONAL, 125 different, cataloging \$3.00, includes triangles, commemoratives, 10c, approvals. Reeves, Box 37597P, Miami 37, Florida.

FREE United States Commemorative First Day Cover plus perforation gauge, hinges, Xmas Stamp Packet, pricelists. Send 10c, handling. Loral Stamps, Box 22-PS, Cambria Heights 11, New York.

OLD U.S., Flags, Presidents, Commemoratives with approvals, free gift 10c handling. Metropolitan Stamps, Box 312CZ, Jackson Heights, New York.

DEALERS Wholesale Catalog. Postage 4c. Franksco, 5031 Queensbury, Baltimore 15, Maryland.

SUPERB Approvals. Stamps 1/3 to 1/2 catalog. P. G. Beals, 62 Bridge St., Manchester, Mass.

FREE!! Franklin Roosevelt Giant Triangle. 25 others Different. Approvals. Berchtold, RFD #1, Troy, Ohio.

FREE 400 genuine postage stamps! Worth \$10.00 at catalogue prices. Africa—Europe—Asia—British Emp.—a fascinating, valuable mixture from foreign convents, banks, etc. Who knows what you will find. Also Free helpful Collectors Handbook. Adults only. Approvals enclosed. Frasek Co., P.S. White Plains, New York.

FIRST U.N. Set. Among World's Prettiest. Only 10c. Approvals. Welles, Box 1246-V, New York City 8.

U. S. Stamps. Giant Bargain Catalog 15c. Raymax, 35-VX Malden Lane, New York City 38.

SEVEN Vivid Flag Stamps. 25 others, 4c. Approvals. Schenkel, 413 Evans, Willow Grove, Penna.

FREE 100 Different Stamps With Approvals. I. J. Stamp Co., Box 644, Bloomington, Ill.

FREE! Jaipur, Kelantan, Pakistan, Queensland, Tanganyika. Inexpensive approvals accompany. Nade's, 6316 Crescentville, Philadelphia 20, Pennsylvania.

TRADE Covers. 2c each. Same quality, all different. Minimum 15. Frederick, Box 62, L.I.C. 3, N. Y.

111 DIFFERENT with worlds smallest stamp only 10c with approvals. Finney, Box 89, El Monte, Calif.

BEAUTIES! Pictorials from Sudan, Andorra, Hong Kong, Iceland, Toga, New Caledonia, San Marino, Singapore, etc. Only 10c. Approvals. Champlain, Isle La Motte, Vt.

FREE—your choice any volume Scott's Loose Leaf Deluxe \$13.50 Albums, 1960 Scott \$11.00 Catalogue even worlds finest Master Global \$18.75 Album Free when you buy our sensational Foreign Approvals. Bargain Stamps, Redlands 3, California.

FREE United States Price List Of Singles, Plate Blocks, FDC's. Introductory Discount. Bailey, 45-H Bromfield, Boston, Mass.

FREE!! Giant Flowers, Helicopters, Bird Triangles. 25 others different. Approvals. Stamps-A-Plenty, Viola, Kansas.

PARTICULAR? Want unusual stamps on approval. Try Bayou Stamps, Box 4126, Pensacola, Florida.

8 DIFFERENT U.S. Airmails free! Approvals accompany. Dee, Box 926S, Ormond Beach, Florida.

25 DIFFERENT New Zealand 10c only to applicants for our bargain approvals. Somith Stamp Co., Dept. S-Z, Box 83 (Rugby), Brooklyn 3, New York.

PENNY Approvals. Thousands. Bargains for pennies. Gifts with purchases. Pennys Stamps, Orange, California.

FREE "Surprise" packet. Approvals. Premiums given. Dancer, B75-T, Mansfield, Ohio.

UNITED Nations 2c postcard free! Lists. Approvals. Teddie, Crystal Beach, Florida.

BEAUTIFUL Miniature Stamp Collection. Only 10c. Hill Company, Box 51, Defiance, Ohio.

FOUR complete Christmas sets free with attractive approvals. Stamp Imports, Peterboro, Ontario, Canada.

1500 STAMPS \$1.00 On and off paper. Good variety. World wide. Many pictorials. No approvals follow. Satisfaction guaranteed. Whalen, 1435 First Ave., Oakland 6, Calif.

TRADE your duplicates toward our approvals! (Foreign only.) Complete information, 10c. Variety Stamps, Box 98-S, Newton Highlands 61, Massachusetts.

CANADA Mint Royal Visit and Seaway only 10c, approvals. Rheume, 6951 11th Ave., Montreal, Canada.

PENNY Approvals jammed with Bargains. For better values, try Putnam Stamp Company, Mahopac, New York.

FREE! Colorful 215-Different Stamp Collection! With Adult, bargain approvals. Rush 10c postage. Philatelics, Dept. TE, New Paltz, N. Y.

FREE!! 50 Different Portuguese; Colorful, Inexpensive Approvals. Elkhart, Box 33, Elkhart, Indiana.

FREE! 50 Different. Approvals. Ehrlich, 426 Jefferson St. N.E., Washington 11, D. C.

50 DIFFERENT stamps free! Approvals. Marford, Box 48, Queens Village 29, New York.

APPROVAL Applicants—1062 Different—\$1.00. Klondike, 682 Jefferson, Elgin, Illinois.

U.S. Commemoratives: 141 Different \$1; 201 Different \$2. Moseley, 6 Hanley Downs, St. Louis 17, Missouri.

FREE Sample! Interesting, Informative. Illustrated. National Stamp News, Anderson, South Carolina.

FIRST Day Cover approvals! Artcraft; Artmaster. Included free: valuable airmail flight cover. Myers, Coopersburg, Pennsylvania.

ECONOMICAL 1/2-3c Approvals. 33,000 varieties. Dresel, Box 128-T, West Englewood, New Jersey.

DIAMOND, Triangle, Timor, Topicals. 44 All Different 10c. With Approvals. Carpenter, Box 310, Claremont, Calif.

FREE U.S. price list plus foreign packet list. Thom, 4808 15th Avenue, Minneapolis 17, Minnesota.

U.S. \$1, \$2, \$5. Special—10c, with approvals. Stevens, Box 24, Bay Station, Brooklyn 35, New York.

FREE United States Fully Illustrated List. First Order—10% Discount. Simmy's, 45-S Bromfield, Boston, Mass.

U.S. Mint Flag set, complete. \$1.00. Free list. Brooks, 2323-T Avenue X, Brooklyn 35, New York.

FREE—Mint British Colonies from Brunel. Solomon Islands, Negri Sembilan, Sarawak, St. Christopher, Nevis, Trengganu, Gilbert Ellice. Free with approvals. Viking, Great Neck 5, New York.

OLD scarce U. S. seconds on approval. Slightly defective, bargain prices. Hearnfeld, Clintonhill Station, Newark 8, N. J.

GIANT Approvals Thousands Different 1c and 2c each. Wahl's Stamp Exchange, 7008K Farragut, Chicago 31, Ill.

100 OLD U.S. Stamps between 1861 and 1935 \$1.00. Rousch Stamps, 51 Chestnut, Mansfield, Ohio.

FIFTY Different U.S. 14c postpaid. Riley, 725 Melody, Metairie, Louisiana.

FREE! 25 Egypt 5c handling. Approvals. Bellet Stamps, Hazel Park, Michigan.

60 DIFFERENT U.S. (30 Commemoratives) 25c. No approvals. Seidenberg, Appleton, Wisc.

1000 DIFFERENT worldwide for approval. Buyers Only. Jacobsen, Crompond, New York.

FREE—Valuable collections—Scott's International and Master Global albums—a gold mine of value all free when you buy our sensational foreign approvals. Topval, Box 486c, Redlands, Calif.

700 MIXED U.S. Various Issues 25c. Monjar, Fairmount, Cincinnati 14, Ohio.

MINT British Colonies Collection! 10c. Adults only. Outstanding Custom Approvals. Westgate, 5 Centre, Hempstead, New York.

VATICAN Coronation Souvenir—Pope John XXIII card and 10 attractive stamps in protective plastic folder. Story of Vatican and coronation on reverse. A beautiful addition to any collection. 25c with approvals. Capital Stamp Co., Ferrysburg 10B, Mich.

TERRIFIC Value. Eight Complete Mint Sets 10c With Approvals. Beatles, 58 Glenagar, Islington, Ontario, Canada.

105 BRITISH Colony Stamps, all different. 10c. Approvals. Crown Stamp Company, 902, Virgil, Ontario.

LOOK! Six Different Queen Elizabeth Mint Sets! Antigua, Malta, Virgins, Etc. 21 Bicolors 25c. Attractive Approvals! Gannon Stamps, Box 931, Canton 1, Ohio.

U.S. \$1.00 buys four fine unused airmails. =C7=-C10. Approvals accompany. Whiton Paine, Westport 12, Connecticut.

25 DIFFERENT Commemoratives 1893 up 10c. U. S. Approvals. K & B, Box 70, Brooklyn 23, N. Y.

50 NORWAY 10c; Economy Approvals. Salsman, Box 702, Berkeley, California.

FREE—Same Stamp Tongs Advanced Collectors Use. Also Stamps Cat. \$2. Approvals 10c. Reid, 441 N. 6, Allentown, Pa.

BARGAIN U.S., 100 different 25c, with U.S. approvals. Stamps, Kennebunk, Maine.

50 ALL Different South America 10c With attractive approvals. Superior Stamps, Box 53, Dept. 39, Cathedral Station, New York 25, N. Y.

14,000 DIFFERENT! Amazing new plan builds your collection systematically, country by country. Only 50c weekly. Free details. L. G. Ware, Stepney 70, Conn.

SURPRISE World Packet. Free With Approvals. Wirth, Route 6, Norwich, Conn.

SPORTS! 10 different. 50 others 10c with approvals. Bennett, Candor 2, N. Y.

1000 FINE Mixed United States Stamps 25c. Wright's, Box 1122, Hagerstown, Maryland.

POLYNESIA girl, Ryukyu lion, Chiang birthday, Czecho mushrooms, Israel musicians, Ghana Nkruma, only 10c. Albums, catalogs, many others free our approvals buyers. Bell Stamp Service, PS9, Bell, California.

U.S. Catalog free. Contains almost 1000 illustrations; over 10,000 delightful bargains. Stone, 260 Washington, Boston 8, Mass.

UNPICKED U.S. Mission Mixture—Pound \$1.00. Mission, 220 W. Allerton, Milwaukee 7, Wisconsin.

CANADA Approval collections. Enclose 10c. Peterson, Box 31, St. Paul 2, Minnesota.

"HITLER Heads"—18 Different 10c. Approvals. Jewells "Stamps", Tamaqua 2, Penna.

EXOTIC Nudes! Plus 25 different Air Mail Stamps. Only 10c to approval buyers. Write today! Cordell, 5106P—25th, Kenosha, Wisconsin.

50 CHINA 10c; Approvals; Gifts. Coast, P. O. 2187S, Santa Ana, California.

U.S. approvals. Low prices. Eagle Stamps, Romine Ave., Pittsburgh 26, Penna.

SUPERB collection 100 World-Wide, 10c. Approvals. Jacksona, Newfoundland, Kentucky.

AIRMAILS! Commemoratives! Pictorials! New Issues! 2c Each! Choose from 30,000 approvals! ABC Stamps, Box 849, San Francisco 1-SB, California.

29 ANTIQUES, RELICS & INDIAN GOODS

SELLING 100,000 ancient Arrowheads, Spearheads, Tomahawks, etc. List free. Lear's, Glenwood, Arkansas.

SCALPING Knife, Flint Thunderbird \$3.00. Catalog Free. Arrowhead, Glenwood, Arkansas.

BOOK-Relic Catalog 50c. Fifteen Arrowheads plus Spearhead \$5.00. Tilton Relics, Topeka, Kansas.

30 MINERALS & PRECIOUS STONES

ILLINOIS:—Rockhounds—Visit Rockhound Paradise. Come Early. Schmagate \$1.00—Azurite \$1.00. Heike's Agate Shop, Wenona, Illinois.

GET Free Catalog no serious rockhound, gem cutter, jewelry maker, hobbyist or craftsman can be without. Full of bargains, exclusive items, low prices from largest suppliers and authorities in the field. Free . . . new catalog just off the press—yours for the asking! Write Grieger's, Dept. C-14, 1633 E. Walnut, Pasadena, California.

ROCKS and Minerals 160 pages 400 colored illustrations. Jewelry price list, Dollar refund Certificate all for \$1.35 Postpaid. Magic Gem Co., 417 S. Spring, Sioux Falls, S. D.

IMPORTED. Black star sapphire and 5 more uncut gems \$2.00. C H Importers, Dept. C. 3113 N Tom Green, Odessa, Texas.

EARTH Science—Rockhounds National Magazine. Subscription \$2.00. Sample 35c. Box 1357-PS, Chicago (90), Ill.

TWELVE New Mexico Minerals \$2.00. Six Fluorescents \$1.06. Five Crystallized Minerals \$1.06. Fools Gold 35c. Hartson, Winston 5, N. Mex.

"GEMS & Minerals Magazine," largest rock hobby monthly. Field trips, "how" articles, pictures, ads. \$3.00 year. Sample 25c. Box 687S, Mentone, California.

POLISHED Gem Stones sent on approval to collectors, students, schools and hobbyists. New England Gem Company, Dover 4, Mass.

GEMSTONES, Thirty, Uncut, Gem, Mineral Book, 400 Color Illustrations, \$5.00. Reed's, 4930A Palo Alto SE., Albuquerque, New Mexico.

GENUINE Virginia Fairstones. Collection \$1.00. Virginian, Box 662, Inverness, Fla.

PROSPECTORS! Learn from experienced geologists, how to locate and identify rocks and minerals. A comprehensive home study course designed for anyone interested in exploring for valuable ore deposits. Write Now, for free literature. Pacific School of Mines, Dept. A, Box 2538, Palm Springs, California.

SAPPHIRE and four more uncut gems, \$1.00. Ten polished gems, baroque-shaped, \$1.00. Free gem list. Lapidary catalogue 25c. O'Brien's, 1116N Wilcox, Hollywood 38, Calif.

31 HOBBIES, COLLECTIONS

INVENTING can be an interesting and profitable hobby. Write for complete particulars. Institute of American Inventors, Dept. 30-E, 635-F St., N.W., Washington 4, D. C.

COLLECT military medals. Iron Cross with ribbon, \$1.50, Purple Heart, \$1.00. Catalog 25c. Hobbies, Box 71 A, Rockaway 94, New York.

SEA shells, collector's selection, fifteen \$1.00 postpaid. Javo, Box 13288, Tampa 11, Florida.

COLLECTORS Matchbook covers, 100 Different unused \$1.00. Catalog 25c. Album \$3.00. Charles Edelman, 1311-P East 84, Cleveland 3, Ohio.

BEAUTIFUL Sea-Shells 100 assorted \$1.00 Postpaid. Varble's, 1505 N. Parkwood, Harlingen 8, Texas.

MILITARY Miniature For Adult Collectors And Historians. Catalog #1 Civil War. Catalog #2 Armies of the World. Catalog #3 Napoleonic-American 35c Each. Bussier Miniatures, Box 107-E, Wollaston 70, Mass.

MATCHBOOK Album. Looseleaf pages, expandable, 144 spaces, \$1.00 ppd. Match Album, 5056 Armitage, Chicago 39, Ill.

SOUVENIR Decals Giant List 10c. Decal, Box 504, Nyack, N. Y.

32 PHOTO FINISHING, PHOTOCOPIES, ETC.

A Triple Value—Quality, Price, Service. Color or Black & White. 12 exp. (Black & White)—59c. 20 Gift Photos—\$1.00. Holiday Photos, Dept. 17, Box 666, Denver, Colo.

A 3-in-1 Value—Price, Quality, Service. 20 Gift Photos—\$1.00. 12 exposure rolls (Black & White)—59c. Color or Black & White. Interstate Photos, Dept. 12, Box 15, Aurora, Ill.

TWELVE Exposure rolls 49c. Wallets 20 for \$1.00. Lincoln Studios, Dept. L, Box 13, Lincoln, Nebr.

ENLARGEMENTS! Eight 5x7's or Five 8x10's from negatives, \$1.00. Wilart, Box 975, Little Rock, Ark.

EKTACHROME Anscochrome 35mm processed \$1.25. Wallet prints from slides 25c. Kodacolor prints 25c. Send for free mailer kit. Acme Color Lab., Box 6025-PC, Minneapolis, Minnesota.

PHOTOCOPIES B&W \$1.50 up. Jumbo prints 10c. Harwell's, Byrdstown, Tennessee.

EIGHT Exposure Roll, Jumbo Prints 45c. Kodacolor Twelve Exposure \$3.61. Gems, Box 1601, York, Penna.

33 MOTION PICTURES, SLIDES SOUND EQUIPMENT

FREE: Blackhawk's big sale catalog 8mm, 16mm, movies, 2"x2" color slides. Biggest selection anywhere! Projectors, cameras, supplies—big discounts! Get free, every three weeks, 12-page newspaper size bargain list! Blackhawk Films, Davenport 15, Iowa.

MOVIE Camera Film 8 mm roll \$1.50. 16mm 100' \$3.00. Free processing. Better Films, 742 New Lots, Brooklyn, N.Y.

TAPE recorders, Hi-Fi components, Sleep Learning Equipment, tapes. Unusual values. Free Catalog. Dressner, 69-02 174 Street, Flushing 65, New York.

MOVIE Film! Free catalog! Eso-H, 47th Holly, Kansas City 12, Mo.

10c BRINGS big new Cine Manual for the 8mm-16mm Movie Maker. Save \$\$\$ on fresh B&W and Color Movie Film, all Home Processing Equipment. Superior, 442-446 N. Wells, Chicago 10.

16MM Sound shorts. Tremendous assortment of features. \$15.50 up. Used 16MM sound projectors, \$79.50 up. Catalog. Abbe Films, 417 West 44th Street, New York 36. PLaza 7-2219.

HI-FI, Recorders, Free Wholesale Catalogue. Carston, 125-PS East 88, New York City 28.

HI-FI components, recorders, tape, records. Wholesale catalog free. Audio Fair, 1799M 1st Avenue, New York 28, New York.

FREE Catalogues. 5,000 8-16MM Films. International Films, Greenvale, New York.

16M.M. Sound Feature Films \$20.00. Bedner, 5300 So. Talman, Chicago.

SPECIAL Entertainment—8 mm. b&w, 50 feet \$12.00. 16 mm., b&w, 100 feet \$20.00. Tex, Box 368, Terminal A, Toronto, Canada.

16MM Sound Films. Bargain Bulletin. Duquette, 97-R Snow, Fitchburg, Mass.

LINCOLN Story, complete in 500 color slides. Catalogue and sample 35c. Willems, Box 1515-G, Chicago 80.

34 CAMERAS, PHOTO SUPPLIES

PHOTOGRAPHY For Pleasure or profit. Learn at home. Practical basic training. Long established school. Free booklet. American School of Photography, 835 Diversey Parkway, Dept. 1727, Chicago 14.

CAMERAS, Film, Projectors—Discounts to 40%. Catalog Free. Photo Distributors, Box 4203S, San Diego 4, Calif.

35 MUSICAL INSTRUMENTS, SONG WRITERS & RECORDS

SONGPOEMS and lyrics wanted. Mail to: TinPan Alley, Inc., 1650 Broadway, New York 19, N. Y.

SONGWRITERS: Recording Company Wants new songs. Royalty basis. National sales, promotion if selected. No charge for melodies. Send material. Music Makers, Dept. G-52, 8344 Melrose, Hollywood, California.

SONGS Into \$\$\$\$\$\$—Share \$33 million dollars yearly for New Songwriters, Song-poets. Any subject, songs composed, published, promoted by largest firm. Information, appraisal Free. Send Nordyke Music Publishers, 6000 Sunset, Hollywood 28PS, California.

SONGWRITERS! Protect your ideas! Hold all poems, songs! Write for safe, correct procedure! Song Service, Dept. PS, 333 W. 56th, New York 19.

POEMS Wanted for musical setting and recording. Send poems. Free examination. Crown Music Company, 49-P West 32 Street, New York 1.

POEMS wanted for musical setting. Established 1939. Urab, 2181 Bedford Ave., Brooklyn 26, N. Y.

POEMS Wanted Immediately for Musical Setting and Recording. Free Examination. Rush Poems. Songcrafters, Acklen Station, Nashville, Tennessee.

POEMS Wanted for musical setting and recording by America's Largest Song Studio. Send poems. Free examination. Five Star Music Masters, 646 Beacon Building, Boston.

ACCORDIONS—1960 Models. Lowest discount prices. Save up to 50%. Free home trial. Trades accepted. Big color catalog free. Accordion Manufacturers, Dept. 109-P, 2003 Chicago, Chicago 22.

GUITAR Making, books, plans, imported woods, tools. List 10c. Wildwood, 510 East 11th Street, New York 9, N. Y.

CHORD Organs—Save 1/2. Italian Craftsmanship. Play without lessons! Terms. Free Trial! Free Catalogs. Philharmonic Importers, Department 99-P, 2003 Chicago, Chicago 22.

I WILL Record Your Song. Melodies Composed. Send Poems For Free Consideration To Wooten 1509 West Seventh North, Salt Lake City, Utah.

COMPLETE Professional Music Service For Songwriters. Colonna Enterprises, Box 888S, Burbank, Calif.

PHONOGRAPH Records cheap, postpaid. Catalogue. Paramount, Box 2026-S, Pine Castle, Florida.

BEAUTIFUL Electronic Steel Guitar anyone can build for \$11.00. Equals finest. Plans \$1.00. Custom Electronics, Bayard, Nebraska.

MUSIC Design Christmas Cards, 21 assorted \$1.00; terrific value. Williams, 13 Hudson, New York 13.

36 RADIO, TELEVISION, SUPPLIES & EQUIPMENT

CRYSTAL Radio Experimenters. Write to Hulet, 305 Hope, Lakewood, New Jersey.

FREE! Giant wholesale catalog on electronics, hi-fi, transistor, scientific, hobby, optics, photographic, housewares, jewelry, tools, novelties, toys. Write: Lektron, 1315 Everett Ave., Chelsea 50, Mass.

TELEVISION Interference Filter \$1.00 Ppd. Electro-Mechanical Co., Springboro, Ohio.

GOVERNMENT Surplus Snooperscopes, Ham Gear, Mine Detectors, Parabolic Reflectors, Telescopes. Picture Catalog 10c. Meshna Malden 48, Mass.

RADIO—Only \$1.50 postpaid, complete kit of high quality parts, earphone and easy instructions. Cosmic Radio, Box 11, Jackson, Michigan.

SLIGHTLY used tube tester, battery eliminator, other items. Orland Helgeson, Viroqua, Wisconsin.

KIT 106A—Fabulous assortment of widely used electronic parts—10 lbs., 100 items, \$100 value—Price \$5.00. MDC, 944 W. Tioga St., Phila. 40, Pa.

HI-FI Converter. Console sound from your radio, television, tape recorder, phonograph, with new speaker and enclosure kit. Free folder. Windhaven Radio, Box 8K-74, Baroda, Michigan.

37 BUSINESS OPPORTUNITIES

IMPORT-Export opportunity, profitable, world-wide, mail-order business from home, without capital, or travel abroad. Established world trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger, X69A, Los Angeles 24.

\$70 WEEKLY—Home, spare time. Simplified mail bookkeeping. Immediate income—easy! Auditax, 34757D, Los Angeles 34.

NEW Home-Import Mail Order Profitability! Your mailbox stuffed with money! No Selling. No experience. No investment. We supply everything. Free Details. Mail Order Distributors (Import Division), 15201 South Broadway, Los Angeles 61B22, Calif.

11,000 NEW Prospects Daily. Baby record books, shoes, albums. Sell mailorder. Use our literature. Write: No-Co-Ro, Capitola, California.

YOUR envelopes addressed accurately, reasonably. Fast service. We have capable addressers in your city. Glenway System, Box 6568, Cleveland 1, Ohio.

YOUR Own Import Mail Order Business! Deal with over 400 manufacturers, exporters of the world. Complete import procedures, international drop-ship methods. Capital unnecessary. Free details. Associated, Box 2068-P8, Sioux City 4, Iowa.

OPERATE profitable mail order business. Write Walter Service, 4159-B East 112th, Cleveland 5, Ohio.

FREE Catalog. Contains hundreds of businesses, farms and income properties throughout U.S., Canada. Specify type and location desired. Deal direct with owners. U.I. Buyers Digest, 1608 Hillhurst, Dept. PS-1, Los Angeles 27, Calif.

VENDING Machines—No Selling. Operate A Route of Coin Machines And Earn Amazing Profits. 32-Page Catalog Free. Parkway Machine Corporation, Dept. 18, 715 Ensor Street, Baltimore 2, Maryland.

QUICK profits, with no capital! Take orders for magazines your neighbors like, want. Make cash on the spot! We show how with Free kit. Get yours now. Write McGregor Magazine Agency, Dept. 341, Mount Morris, Ill.

EARN Money At Home raising fishworms for us! Backyard, garage, basement. We buy your crop! Inquire: Oakhaven-42, Cedar Hill, Texas.

FIX Typewriters. Free Repair Course. Home operated. Remit 25c for book explaining Free Course and Agency Appointment. Athey, Tarentum, Pa.

GROW Orchids at home. Profitable, fascinating. Successful home grower explains special light, temperature and humidity conditions orchids need. Free—Full details. Orchids, 100 S. Vermont, Los Angeles 4.

MAKE Extra Money—Big Cash Commissions plus premiums for you and your customers. Sell Advertising Book Matches—sensational new Tenorama, Glamour Girls, Hillbillies; dozens others. All sizes—Quick daily sales; big repeat business. Free Master Kit makes selling easy—no experience necessary. Superior Match, Dept. PX-1059, 7530 Greenwood, Chicago 19, Illinois.

GAME Warden, Government hunter, Forestry, Park and Wildlife Services announce job openings. All states. Enjoy outdoor work, good pay, real security. Complete information Free! Write Forestry & Wildlife Course, Dept. CC-18A, 1038 S. LaBrea, Los Angeles 19, California.

\$250.00 WEEK profit possible. Earn at home spare time with fascinating Printing method. \$5 starts you—send no money now. Free Confidential Facts and Valuable Samples. Screen-Print OR, Los Angeles 61.

\$100.00 WEEKLY spare room. Raise redworms soilless way. Odorless. Charlie Morgan, Box 116C, Bushnell, Florida.

FREE Name Brands Catalog! Your own high profit business. Sell Name Brands, full or part time. No inventory—no investment. More than 2000 Name Brand items; lowest wholesale prices. Watches, jewelry, cameras, hi-fi, stereo radios-phonos, appliances, housewares, hardware, power tools, luggage, musical instruments, garden equipment, sporting goods, toys, many others. 8 Floors of Name Brands. Million dollar inventory. Orders shipped complete within 24 hours. Send for Free beautifully illustrated catalog Now! Separate wholesale price list. H. B. Davis Corp., Dept. 14, 145 West 15 St., New York 11, N. Y.

\$3.00 HOUR—home, sparetime, assembling pump lamps. Easy. Free Details. Ougor, Caldwell, Arkansas.

IF You Like Motorcycles And Money then send for Harley-Davidson Dealership Book on how to become a franchised dealer of motorcycles and a new line of motor scooters. Here's a chance to own your own business with a very modest investment. The youth market is beginning to explode and the next few years promise a chance to cash in on it. Write for free illustrated Dealership Book Today. Harley-Davidson Motor Company, Dept. P.S., Milwaukee 1, Wisconsin.

BRONZE Baby Shoes: Instructions, Equipment and Mountings for genuine Electroplating Process. Largest Supplier of all Plating Equipment, Supplies. Free Catalog. Hollywood Bronze Supply, Dept. B-1, 1624 East First, Los Angeles 33, California.

PLATE Baby shoes, jewelry, gifts. Bronze and colored pearl. We finance home businesses. Booklet free. Williamson, 11029 South Vermont, Los Angeles 44.

BARON Rothschild became wealthy buying stock "nobody wanted." So can you! Get free Folder PS-6, Forecasts, Box 87, Pelham, N. Y.

"50 NEW Home-Business Ideas" Booklet, sample Free. Spray exotic Velvet-Suede on anything. Flokraft-OR, Los Angeles 61.

FRANCHISES make profits! Have your own profitable franchise business. Opportunities nationwide for distributors, dealers, agency operators. Join thousands of ambitious men throughout America who secure their franchise guidance each month from National Franchise Reports. This pioneer franchise reporting service has been recommended in business books, magazine and newspaper feature articles. It is the authoritative, recognized national clearing house for franchise information. Let NFR assist you in securing a valuable franchise. Write today for interesting, free details of this helpful service. National Franchise Reports, Y-528, 333 North Michigan, Chicago 1.

FREE Literature — Make Big Money Raising Fishworms and Crickets. Carter Farm, Plains, Georgia.

FREE plan and personal help. Retired mail order operator will show you how to start profitable home business. N. Cole, 217 West 49th, Bradenton, Florida.

MARKETS Everywhere. Make Artistic concrete birdbaths, pottery. Best coloring. Home workshop. Hundred varieties. Hollywood Cementcraft, 8527-N Wonderland, Hollywood 46, California.

MAILORDER To Churches, Motels, Restaurants, Institutions. Complete, individual set-up—not just instructions. Hermes Advertising, 152-G West 42, New York City 36.

WANTED, Men, Women, Raise bait for us at home. Full, spare time. Doesn't take up space. We furnish everything. Sherwood, Dept. P-5, Monmouth, Maine.

IMPORT-Export Business Made Easy. Individual setup service—not just instructions. Hermes, 152-R West 42, New York City 36.

SELL Weatherstripping. Exceptional profit. All-Metal, simple to install. Write E-Z-On (PS), 1009 Harvard Terr., Evanston, Ill.

OPERATE profitable mail order business. Write Wayne's Service, 3016-P3 Channing N.E., Washington 18, D. C.

EARN 173% Profit on 25c item. Sell New American Flag printed in color on parchment paper. Write New American Flag, 145 Kennedy Street, N.W., Washington 11, D. C.

WILL You test new items in your home? Surprisingly big pay. Latest conveniences for home, car. Send no money. Just your name. Kristee, 111, Akron, Ohio.

EARN Good Money sharpening chain saws, scissors, cutters, knives. Free Manual. Treyco, North Tonawanda 1, New York.

\$5,000, MEN, Women! Work Home! Sparetime! Free "Confidential Plan." Scott, Box 383, Great Neck, New York.

EARN \$20,000 A Year from your own mail order business at home. Proved program. Free details. DeLang Research, Box 52-C, Burlington, Iowa.

MAILORDER. America's most unique no cost plan for beginners. Armstrong's, 154 Darrington St., S.W., Washington 24, D. C.

MANUFACTURING Opportunity—Local plants are required to process trademarked building product for regional markets. Basic materials locally available. \$2600 worth of product per week from 4-man crew. Broad markets and generous income potentials. Intensive cooperation in sales development if required. Exclusive manufacturing rights in territory protected by franchise. Investment ranges from \$20,000 to \$30,000, of which about 50% is for machinery. Full information from Brikerete Associates, Inc., 422 W. 25th Avenue, Holland, Mich.

I GOT rich in the Dry Cleaning Business—with no investment—so can you. Free details. Write—Imperial School of Dry Cleaning, Dept. PSC, 1700 Touhy Avenue, Chicago 26, Illinois.

MANUFACTURER Fishing Lures. Plastic, none better. 20 Models. Pennies. Free circular. Quaker, 3514-24 N. Lawrence, Phila. 40, Pa.

BUY Vitamins Wholesale—Personalized Label Available. Doctors Invited. Ohsen, Dept. 1109, 384 Sewell, Akron 19, Ohio.

PLAQUES—Figurines—Molds. Free Details. Russo, 1194 Brooklyn Ave., Brooklyn 3, N. Y.

FEATHER Christmas And Greeting Folders. 4 1/2"x6 1/2". Dozen Assorted \$1.95. Mexicano, Dept. 1104, Calexico, Calif.

REPAIR Hydraulic Jacks. Illustrated repair manual \$3.98. Free information. Hydraulic Parts Supply, Box 4104, El Paso, Texas.

PIANO Tuning learned quickly at home. Tremendous field! Musical knowledge unnecessary. Information free. Empire School of Piano Tuning, Champaign, Illinois. (Founded 1935.)

CANDIED Popcorn and Potato Chip Equipment. Eakins, Box 933-B9, Springfield, Ohio.

PROFITABLE Lifetime homework. Typewriter helpful. Business literature and instructions 50c. Interstate, Dela Station, Albany 9, N. Y.

"BOOKKEEPING System for Mailorder Beginners". \$1.00. Tasker, Box 3131, Alexandria, Virginia.

SELL Books by mail. 400% profit. Royal, Box 368-M, Cleveland 27, Ohio.

OPPORTUNITY to earn \$15,000-\$30,000 annually. Franchise protected. Granted on \$12,500 basis. Live at home. No merchandise to buy. Selfemployed. One of most exclusive and non-competitive businesses in United States and Canada. Send for free explanatory booklet. Harrell and Company, Box 8-D, Louisville, Illinois.

MAIL Order opportunity magazine 10c. Moritz's Fireside Shopper, Saginaw, Michigan.

PLASTERCRAFT molds, liquid rubber, plasters, flocks, candle supplies. Catalog and manual free. Jayhawk Plasters, Blue Rapids, Kansas.

MOTEL—Resort Management—Qualify for hundreds fascinating, leisurely, well-paid executive openings. Learn at home. Free booklet. Motel Managers Training School PS109, 612 S. Serrano, Los Angeles 5.

"MAILORDER Laws and Regulations" including "Mailorder Rules for Beginners". Explains Federal, State and Local licenses, taxes, and legal requirements for operating mailorder businesses. \$2.00 postpaid. Tasker, Box 3131, Alexandria, Virginia.

MAKE flexible molds. Cast plaques, figurines. Free sample. Tooker, 1045-A Fairview, Hamilton, Ohio.

BAKE New Greaseless Doughnuts In Kitchen. Sell stores. Free recipes. Summers, 3605 South 15th., Minneapolis 7, Minnesota.

\$34.70 TWO Hours. Manufacturing Concrete Products. No Selling. Carlayn Castings, 1803 Fremont, Rapid City, South Dakota.

OPERATE profitable mailorder business!! Write: Bond, 1637-R West Vernon, Phoenix, Arizona.

LIQUID Miracle scoots rust off everything. Over 100% profit selling Farms, Homes, Factories, Stores. Liberal handsale bottle, exclusive arrangement, demonstration kit \$1.00 P.P. Service Industries, 2107 E. Somerset Street, Philadelphia 34, Pa.

BUY Direct From Factories—Appliances, Cameras, Watches! Free details! Cam Company, 6810PS-20th Ave., Brooklyn 4, New York.

PROFITABLE Mailorder Operation! Write: Vikari, 468-PS Third Avenue, Salt Lake City 3, Utah.

1959 "DOLLAR Maker Tips" \$3.00 Guaranteed. Allen, 612-PSB, East Burnside, Portland 14, Oregon.

\$70 WEEKLY addressing envelopes, clipping newspapers! Detailed instructions \$1, refundable. Chez Bonnie, Box 290, Great Neck, New York.

"EVERYBODY Likes Candy" — Make Professionally Home... (Our 48th Year.) Ragsdale Candies, D107, East Orange, New Jersey.

NATURAL Molding Rubber: Extra Thick. Free Sample. W. Wooley, 1016-B Donald, Peoria, Illinois.

METALIZE Baby Shoes; Repair Dolls; Rebuild Batteries; Catalog "75 ideas" Free. Universal, Box 1076-B, Peoria, Illinois.

OPERATE profitable "Bookkeeping Service." No experience! \$27,000 yearly possible! Write! Liberty, 210-T Fifth Avenue, New York 10, N. Y.

\$2,000.00 MONTHLY possible. No selling!! No experience!! Christianson, Box 295-B, Schofield, Wisc.

LEARN Landscaping And The Growing Of Plants. Start A Profitable Business Part Or Full Time. Free Information Without Obligation. National Landscape Institute, Dept. PS-109, 11826 San Vicente Blvd., Los Angeles 54, Calif.

OPERATE Profitable mail order business! United Wholesalers, 1265 Broadway, New York 1, N. Y.

NEED money! Want security! Independence! Start home mailorder business on shoestring. Write: Cox, Saugus 2, Massachusetts.

LOVE our mailman! Leaves \$1,000.00 monthly in mailbox. My college professor husband's moneymaking operation. Now accepting agents. Inquire: Eveningshade, Boerne 2, Texas.

OPERATE profitable "low cost" Mail Order Business. Write! Liberty, 210-SP Fifth Avenue, New York 10, N. Y.

MAKE \$5,000-\$15,000 Yearly at home in respectable field. Future growth unlimited! No experience necessary; no public contact; nothing to grow or make. Free expert guidance helps you achieve financial success! Rush \$1.00 today for complete details! Satisfaction or refund. Columbia Enterprises, 9268 PS Piney Branch Road, Silver Spring, Maryland.

LEARN A Trade. Free List Used Courses. Hutchison, 4167 Hemphill, Fort Worth 15, Texas.

MAKE \$46 From Square Foot Plywood; Jigsaw necessary. Free Details. Woodarts, Bridgewater, Mass.

MOLD Statuary, Pottery, Tiles, Novelties—5c materials makes dollar sellers! Particulars free. Marbleizing Service, Edwardsville, Illinois.

"PROFITABLE Business Management" Courses Guarantees Your Enterprising Success. Inexperience, Incompetence Causes 93% Failures! Alltools, P.O.B. 465-PS, Chicago 90.

DOLLS! Dolls! Dolls! We teach you to repair, make, sell, all kinds. Study at home. Earn while you learn. Free information. Doll Hospital School, Studio PS-109, 11826 San Vicente Blvd., Los Angeles 49, Calif.

YOUR own business. Sell our unusual, charming jewelry full or part time. High profits. No investment. Free information. Fredericks, 1223 National Newark Building, Newark, New Jersey.

BIG profits in business of your choice. Many to choose from. Free details. U.S. Financial Council, 11139 McCormick, Dept. J30, North Hollywood, Calif.

COLORGLAZED Concrete pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries, Grand Rapids, "Minnesota."

LIQUID Molding Rubber. Free Sample. Shellcraft Supplies, Chaney's, 1907-C East Road, Jacksonville 11, Fla.

MAKE Money at Home. Man or Woman. Part or Full Time. Easy. Profitable. Details Free. Mishek, Dept. 12A, Waseca, Minnesota.

300% PROFIT selling needed automotive product. M. Bour, Dept. 1A, 926 Lincoln Way, McKeesport, Pa.

MINK Raising information free. Complete. Lake Superior Mink Farm, Superior EE, Wisconsin.

AMAZING Profits making concrete drain tile! Details free. Ceeten Products, Cornelia, Georgia.

38 MONEYMAKING OPPORTUNITIES

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write Wagoner, P-125 West 86th, New York 24.

SELL Titania Gems: far more brilliant than diamonds. Catalog 10c. Diamonite, 2420-S 77th, Oakland 5, California.

MAKE Money Writing Short Paragraphs. Information Free. Barrett, Dept. C-86-D, 7464 No. Clark, Chicago 26.

UNIQUE Stock Market Method pinpoints dynamic issues, eliminates guesswork! Spectacular results—automatically! Treasury, 709 Webster, New Rochelle P-3, N. Y.

INVISIBLE Reweaving: \$5 in one hour possible reweaving urns, tears, moth-holes. Spare-Full time. Free Details. Skil-Weave, Dept. SC1310, 335 W. Madison, Chicago 6.

AMAZING successes through franchises! Secure your own profitable franchise business. Alert yourself to nationwide opportunities. They are published each month by National Franchise Reports. This is the pioneer franchise reporting service recognized nationally as the clearing house of franchise information. Send today for free, interesting literature. National Franchise Reports, SP-528, 333 North Michigan, Chicago 1.

FREE Literature — Make Big Money Raising Fishworms and Crickets. Carter Farm-11, Plains, Ga.

VENDING Machines—No Selling. Operate A Route of Coin Machines And Earn Amazing Profits. 32-Page Catalog Free. Parkway Machine Corporation, Dept. 19, 715 Ensor Street, Baltimore 2, Maryland.

JIGSAW Owners. Write Edward Cook, 51 Martin Avenue, Saratoga Springs, New York.

TOP Cash for rare coins. Buy list 10c. Richer, 901, Schenectady 1, N. Y.

MAKE \$5,000 yearly sparetime raising mink, chinchillas, nutria, etc. Free booklet reveals proved plans. Write: Pura, 588 Mt. Pleasant Road, Toronto 2, Canada.

\$35.00 WEEKLY addressing envelopes. Instructions \$1.00 Refundable. Adservice, Spring Valley, New York.

MONEY-Making Opportunities Unlimited! Earn good money selling fabulous money-making toys, collector's items, gifts, jewelry, household items, gift wraps, and greeting cards. Reasonably priced. All sell on sight. No big investment. No experience needed. Big illustrated catalog contains 785 money-makers. Write for free catalog. Samples on approval. North Star, 9-738 Finch Bldg., St. Paul 1, Minn.

PROFITS! Pool-Golf—Build and sell exciting new game combining golf and pocket billiards fun. Plans \$2. Crawford Amusements, Lebanon, Ohio.

SELL Newspaper Clippings for cash. I tell where. Russell Tupper, Sandwich, Mass.

TEAR Out This Ad. and mail with name, address for big box of home needs and cosmetics for Free Trial, to test in your home. Tell your friends, make money. Rush name, Blair, Dept. 55CT, Lynchburg, Va.

EARN more money! Know and capitalize on your abilities! Eliminate doubt as to your future! Send \$5.00 for comprehensive Intelligence Test and analysis. Associated Institute, P.O. Box 4, Manhattan Beach 8, California.

AMBITIOUS Single Men—\$1,000.00 A Month Average For Life. Seem Fantastic? I'll Show You How. Write Shirli E. Brunner, Box 575, Wailanae, Oahu, Hawaii.

UNLIMITED profits! No selling. Details and sample \$1.00, refundable. Richard Petrucelli, 118-16th Avenue, Newark, N. J.

MEN — Women! Start Money-Making Plastic Laminating Business at home in spare time. Material that costs 11c brings back \$2.58. No canvassing or selling but mail orders bring in \$20 a day. Write for full particulars Free. Rush name on postcard to Warner, Room CL-3-H, 1512 Jarvis, Chicago 26, Ill.

\$15.00 THOUSAND! Addressing Envelopes For Advertisers! (We make no false claims) Other Opportunities! 100 Firms! Details 25c. Barrie, Box 1247, Jamaica 21, N. Y.

BIG Profits selling ties. \$2.00 value. \$6.50 dozen. Free Catalog. Empire Cravats, 656-PS Broadway, New York City 12.

START Big-Pay business at home in spare time. No experience needed to operate little table-top machine for bronzing baby shoes. Make \$5.46 profit on every pair. Full particulars free. Send postcard to Mason, 1512 Jarvis, Room CM-3-L, Chicago 26, Illinois.

BUY Direct. Below Wholesale! Resell Christmas Gifts, Pecans, Office Supplies, Printing, Rubber Stamps, Roll-On Inkers. Profits to 50%. Your Name Or Label. All Materials, Catalogs To Start—\$1 Cost—Refundable. Joseph's, Barnesville, Georgia.

HAMMER? Saw? Drill? \$100 Weekly. Jett, Box 422, Escondido, California.

\$340.00 MONTHLY with jigsaw. Details. Elkman, 346 North Summit, Sioux Falls, South Dakota.

MAIL newspaper clippings daily for cash. Ketchum's Advertising, 1058-B, Springfield, Illinois.

MAKE Easy Money Addressing—Mailing! Be smart, write—Merrill Hestand, Box 182BS, Hatfield, Pa.

MONEY Making and Saving Catalogue. Write, Adams Exchange, 210 5th Avenue, New York 10, New York.

SELL Information by Mail. 10-to-1 profit ratio. Valuable Suggestions Free. Rawson Wood, 2753-OK Pullerton, Chicago 47.

OPPORTUNITIES Galore. Mail Order Trade Paper, 10c. Fisher's Projects, 3801 Riverside, Cleveland 9, Ohio.

CIGARETTES—Make 20 plain or filter-tips for 9c. Facts free. Moberly, Box 911, Owensboro, Kentucky.

FASCINATING Home-Money-Making Plans. Alomor's, B-4266 Warrington, Pensacola, Florida.

MAKE Big Money. Top commissions soliciting delinquent accounts. No investment required. Instructions and supplies free. General Finance, Desk 7, Pickwick Bldg., Kansas City 6, Mo.

OPERATE home Mail-order Business. Vosacek Printing, 4444PS Ute, San Diego 17, Calif.

\$30-\$60 WEEKLY addressing envelopes for advertisers. Instructions \$1, refundable. Ryco Service, 210 Fifth Ave., Suite 1102-S, New York 10.

MAIL Order—Man or Woman can operate. Get information on our successful plan. Information Free. Mishek, Dept. 12D, Waseca, Minnesota.

EASY to start rubber stamp business at home in spare time. Make up to \$9.80 an hour without experience. Facts free. Write to Roberts, 1512 Jarvis, Room CR-3-L, Chicago 26.

\$12,000 A Year Plan Own Rental Route. What To Make, Rent, Gas Stations, Motels, Drive-Ins. Instructions \$2.00. L. B. Hines, P. O. Box 65, Cabool, Mo.

38A BUY IT WHOLESALE

TERRIFIC Values! Hundreds everyday items wholesale, catalog 25c, refundable. Starnes, 1812 Washington, Durham, N. C.

NEW Multicolor Wholesale Catalog! Housewares, appliances, clothing, silverware, cookware, luggage, binoculars, shavers, radios, phonographs, cameras, projectors, recorders, typewriters, sewing machines, furniture, power tools, toys, sporting goods, watches, diamonds, jewelry, automobiles, etc. Name brands. Huge discounts. Postcard, Selbyco, Decatur 173, Illinois.

LARGEST Wholesale Supply Source in U.S. Get free catalogs. Furniture, clothing, appliances, autos and accessories, farm equipment, tools, housewares, hobby supplies. Free details. Associated Wholesalers, Box 2068-C, Sioux City 4, Iowa.

YOU Must See To Believe!!! Terrific Bargains! Everything From Safety Pins To Household Appliances!—Shipped Direct From Our Warehouses—Any Amount!! Rush \$1.00 For Catalog! P. O. Box 544, Hartford, Connecticut.

AVIATION Surplus bargain catalogue. One Dime. Box 22PS, Thomasville, Pa.

BUY Wholesale Nationally advertised products. Directory of over 80 catalog sources. \$1.00. Ozco, Canaan 2, Conn.

OLD Wall Telephones, working order. Oak Cabinets, hand crank for ringing. \$7 each. F.O.B. Telephone Co., Turtle Lake, Wisc.

TRANSISTOR radios. Four transistor—\$15.90, Six—\$17.90. Kalenak, 1100 Heeney, Johnstown, Penna.

FANTASTIC 32 Page Discount Catalog 10c. Creative, Box 12, San Bruno, Calif.

39 FORMULAS, PLANS, ETC.

FORMULAS—All kinds. Latest products. Literature free. Kemico, Park Ridge 15, Ill.

LATE Modern Manufacturing Formulas List Free. Chemical Service, Martville, New York.

MANUFACTURING Formulas: Newest products for home, car. Literature Free! Write Chemist, Box 337-C, Orrville, Ohio.

10,000 FORMULAS, Trade Secrets. 900 Pages. \$3.95 Refundable. Circular Free. Marjen, 1109 Balmoral, Chicago 40, Illinois.

SPECIAL Formulas for latest money-making discoveries. New! Good! Profitable! Valuable Literature Free! Miller, Chemist, 1517-N, Tampa, Florida.

40 PLASTICS

LEARN Plastics Fabrication For spare time income. Low cost home training now available. Write for free booklet. Interstate Training Service, Dept. D-2, Portland 12, Oregon.

NEW Liquid casting plastic, clear, colors. Embed real flowers, butterflies, photos, coins. Send 25c for two handbooks "How to Cast Liquid Plastics" and "How to Make Extra Money at Home." Castolite, Dept. L-102, Woodstock, Illinois.

YOUR Social Security Card Sealed in Plastic 25c. Ray Putt, 1640 Dyre Street, Phila. 24, Pa.

LAMINATING Supplies. Price List Free. Solomson, 46 Cornhill, Boston 8, Mass.

ELECTRIC Laminating Kit. Fun or profit. \$14.95. Therm Appliance, St. Charles, Ill.

EVERYTHING in Plastic Supplies. Catalog \$1.00. Gel, Box 261, Union, N. J.

PLEXIGLAS—Any thickness—Clear—Colors—Cut to size—Clear Rods—Tubing. McClarin Plastics, P.O. Box 168B, Hanover, Pennsylvania.

PLEXIGLAS. Square foot cost. 1/16"—\$1.20; 1/8"—\$1.52; 3/16"—\$1.86; 1/4"—\$2.21; 5/16"—\$3.23; 1/2"—\$4.36. Colors add 10%. Send 15% for postage. Aristocrat Plastics, 23 Sussex Avenue, Newark, N. J.

NOW—Electric Plastic Laminating Kit. Profit. Pleasure. Burr, 330 East Centre, Kalamazoo, Mich.

CELLULOID scrap. Also sheets, state colors, thickness. Plastics, Box 8096, Newark 8, New Jersey.

PLEXIGLAS Cut-Offs All Thicknesses—70c/lb. Kaufman Glass Company, Plastics Division, Wilmington 99, Delaware.

41 SCIENCE & CHEMISTRY

AMAZING New Book Of Science Experiments, formulas, and Catalogue of Laboratory Supplies. Only 35c. National Scientific Co., Dept. PS-10, 13 S. Park Avenue, Lombard, Illinois.

MICROSCOPE slides, anatomical. Free list. Bay, 409 Roosevelt Way, San Francisco 14, California.

CHEMISTRY—Microscopic-Insect: Butterflies-Rocks: Minerals-Sets Complete. Literature—Amateur Chemist and Microbiologist, 208 East Eleventh, Kansas City, Mo.

LABORATORY Chemicals And Supplies. Catalog 50c. Atlas Chemicals, Box 22, Rupert, Idaho.

CATALOG With 3000 Illustrations \$2.00. Laboratory Materials, 7319 Vincennes, Chicago.

ROCKET chemicals, chemistry set refills. Apparatus, glassware. Catalog 25c. Bio Chemical Products, 30-P Somerset, Belmont 78, Massachusetts.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology 25c. Tracey Laboratories, Evanston, Illinois.

CHEMICALS and apparatus for industrial, analytical and private laboratories. Catalog 25c. Dept. M-26, Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N.Y.

MICROSCOPE Slides (Frosted End) Factory rejects. \$1.75 per gross. 5 gross \$5.00. P.O.B. Perkassie, Pa. J. Melvin Freed, Inc.

CHEMISTRY—Science—Rocket Magazines. Literature Free. Lankton Bureau, Summerland Key, Fla.

BOOKLETS! "Chemistry," "Physics," "Astronomy," "Science," "Relativity," "Electricity," "Radio," "Light," "Tables," "Mathematics." 15c Each. Franks, 3121 South Racine, Chicago 8.

CHEMICAL And Physical Properties Of The Elements. 40PP Booklet Tabulates 102 Elements Alphabetically. \$1.00. Columbia Associates, Box 591, Hudson, N. Y.

EXPERIMENTERS—Terrific "Bargains Galore" Catalog—25c. Hagenow Laboratories, Manitowoc, Wisconsin.

UNUSUAL Chemistry books, courses, kits! Rare chemicals, cheap! Catalog free! National, Box 133-A, Palo Alto, Calif.

ROCKET Supplies for amateur rocketry. Catalog 25c. Mervin Hill Company, Boltz, Penna.

36 RADIOACTIVE isotope experiments for \$1.00 for High School Students. Atomic Researchlab, 10717 Venice, Los Angeles 34, Calif.

ROCKET: Beautiful New Model. Safety-Proved Super-Thrust Motor. 1000 ft. Per. Easily Installed Fuel Unit. Reliable Parachute Recovery Of Entire Missile. 36" Ramp. Everything Included For 3 Launchings! \$3.98 PP. Extra Fuel Cartridges 35c Each. Central Rocket Company, 89S. Wau-paca, Wisconsin.

NEW catalog, low priced chemicals, apparatus, biologicals, microscopes. Catalog 20c. Winn Chemicals, 124P West 23rd Street, New York 11.

42 HELP WANTED REPORTS

COPYRIGHTED Reports. Best paying companies—travel, adventure, promotions. Construction, aviation, shipping, oilfields, laborers, clerical, trades, supervisory, factory, unusual opportunities. Skilled—unskilled. Foreign—Stateside. Only \$2.00 (\$2.25 Airmail) (COD's Accepted). Satisfaction guaranteed. Included free: Special reports on Alaska—Venezuela—South America. Research Services, Meramec Building, St. Louis 5PS, Missouri.

AMERICAN Overseas Jobs. High Pay. Men, Women. Transportation Paid. Free Information. Transworld, Dept. 19C, 200 West 34th St., New York 1.

JOBS on Steamships, Yachts, traveling foreign countries. Davenport's, 1354-J, GPO, New York 1, New York.

FOREIGN Jobs—Latin America, Alaska, Canada, up to \$1500 monthly. Up-to-date 1959 Foreign Service Directory gives complete information; hot list of firms hiring for Military and Civilian Construction, Aircraft, Oil, Exporters-Importers, Mining. How-When-Where to apply. 11th Successful year. \$1.00. Global Reports, Box 8873-P, Los Angeles 8, California.

FREE Information — USA Overseas Jobs, High Pay, Transportation—Futures, Dept. P, 215 West 34th Street, New York City 1.

AMERICAN Overseas Jobs, High Pay, Transportation Paid. Men, Women, Act Now!! Write Today. Free Information. Employment Headquarters, 79 Wall Street, Dept. D-1, New York 5.

FOREIGN Language Teachers, Professional. Part Time. Box 1995, Dallas 21, Texas.

LATEST Foreign jobs. Unlimited opportunities. All Trades. (Certified) by America's leading job Researcher. Plus newest South America, Alaska, Canada, Venezuela listings. \$1.00. Universal Researcher, Box 4912, Baltimore 20, Maryland.

JOBS Overseas! Write Janacek Development Co., 109 Hub Station, New York 55, N. Y.

JOBS, Ships. \$100 Weekly Beginners Travel. Adventure. Details Free. Seamen's Service, Box 17-P, Brooklyn 8, N. Y.

JAPAN! Far East! Many hi-paying jobs available now. All types. Complete, detailed information \$2.00. Walts, Box 903, C.P.O., Tokyo.

LARGEST Canadian Classified Section. Weekend Edition. \$1.00. Box #169, Woodstock, Ontario, Canada.

43 AGENTS WANTED

AGENTS—300% profit selling genuine gold window letters; stores and offices. Free samples. Metallic Sign Letter Co., 1217-E West Newport, Chicago.

GOLD or Silver letters, numbers. Windows, Doors, Trucks 1" to 6". 500% Profit—Free Samples. Atlas-U. Box 543, Oak Lawn, Ill.

EVERY Man A Prospect. Request Free Sales Kit showing line of belt buckles, tie clasps, money clips, cuff links, lapels, individualized with customer's name and emblems, also cap badges for trucking, bus, taxi, police, firemen. Choice 3,000 emblems. Hook-Fast, Box 1425-PS, Providence, Rhode Island.

START Your Own Business On Credit (U.S. and Canada). Your own boss. 1383 Dealers sold \$5,000 to \$33,500 in 1958. We supply stocks, equipment on credit. 200 home necessities. Sales experience unnecessary. Pleasant profitable business backed by world-wide industry. Write Rawleigh's, Dept. J-U-PSC, Freeport, Illinois.

MEXICAN art goods! Free Sample! Send 14c stamps mailing. Sylvia, Apartado 9036, Mexico City.

CHRISTMAS Cards—with customer's name imprinted. Broad-appeal personal designs and big-volume business designs—all in one attractive presentation album that actually sells for you! These deluxe cards pay deluxe commissions. Earn \$300 to \$500 (plus Bonuses) easily between now and Christmas, even in spare time. Sales experience unnecessary. Old-established manufacturer. Free Sales Kit includes Sample Album and complete easy-to-follow selling instructions. Send for Kit now and pocket profits next week! Write Process Corp., Dept. 5C, 1954 S. Troy, Chicago 23, Ill.

MAKE Money selling sensational Dwarf Trees—bear Giant-Size Apples, Peaches, Pears. Ornamental. Also Stark-Burbank Standard Trees, Roses, Shrubs, Vines, etc. Outfit Free. Stark, Dept. 30100, Louisiana, Missouri.

ANYONE Can Sell famous Hoover Uniforms for beauty shops, waitresses, nurses, doctors, others. All popular miracle fabrics—nylon, dacron. Exclusive styles, top quality. Big cash income now, real future. Equipment free. Hoover, Dept. M-101, New York 11, N. Y.

TREMENDOUS profits! Every man, woman and child a customer. Suits \$1.50. Pants 35c. Dresses 20c. Shoes 20c. Operate from store, home, car. Free catalog. Superior, 1250-B Jefferson, Chicago 7.

NEW Car Thief Signal. Lightning Seller. Samples sent on trial. Northwest Electric, 229 Mitchell, South Dakota.

CALENDARS, Advertising Novelties, Matches. All styles. Including Religious. Varnished 12 sheet. Girls. Hundreds of Advertising Novelties, Book Matches, etc. Fleming Calendar Co., Promotional Division, 6539 Cottage Grove, Chicago 37, Ill.

WILL you wear new suits and topcoats without one penny cost and agree to show them to friends? You can make up to \$30.00 in a day even in spare time, without canvassing. Pioneer Tailoring Co., Congress & Throop Sts., Dept. W-1226, Chicago 7, Illinois.

YOUR Own business—Suits \$1.50; Overcoats 65c; Mackinaws 35c; Shoes 12½c; Ladies' Coats 30c; Dresses 15c. Enormous profits. Catalog Free. National Mail Order, 2111-J Roosevelt Road, Chicago 8, Ill.

2 SALES daily make \$150 weekly! Automatic New bed warmer you sleep on; out sells electric blankets 10 ways. 9 of 10 demonstrations sell on Assured Sales Plan. Electro Warmth, Dept. PS-1059, Danville, Ohio.

"FOG-STOP" Windshield Cloth. Instantly removes blurry Mist, Frost, Sleet, Snow. Stops windshield fogging. Samples sent on trial. Kristee 65, Akron, Ohio.

800 WAYS To Make Money With No Selling Effort! Pretested best selling gifts for men, women, children, the home! Distinctive greeting cards, stationery, novelties, jewelry, cosmetics, toys, gadgets. Make up to 92% profit. Many "exclusives". No minimum order. Samples on approval. Write today for exciting details, free, colorful catalog. Greetings Unlimited, 9-364 Park Square, St. Paul 1, Minn.

WANT to make \$20 or more in a day for part or full time route work? Man or woman. Write McNess Co., Freeport 25, Ill.

\$1,000.00 a month for making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. New chemical used by Airforce snuffs out fires instantly. Only \$4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 E. 32nd, Dept. P-66E, New York 16.

SEEKING New Products? Get my outfit 47 moneymaking specialties. Latest conveniences for home, car. Send no money. Just your name. Kristee, 66, Akron, Ohio.

SELL Covered Wagon Lamps. Retail \$9.95 to \$14.95. Wholesale \$6.95. Good Seller Anywhere. Details Free. Garitty, 5011-5 Elton, Baldwin Park, Calif.

BIG Profits selling. Bibles, dictionaries, Encyclopedias, cook books, others. Free Details. Adam, 97 Warren St., New York 7, N. Y.

EASY handwork makes fast-selling useful articles. Sample free. Sunmade Company, Brockton 64, Massachusetts.

\$3.95 AUTOMATIC fire extinguisher. Details Free. Out-O-Matic, 1737H East 31st, Denver 5, Colorado.

NATIONALLY Advertised Unbreakable Plastic Housewares. Containers, Draperies, Tablecovers, Rainwear, Utility Covers. Largest Selection! Lowest Prices! Free Catalog PS910. Acclaim, Box 4, New York 40, N. Y.

BUSINESS of your own. Earning potential as high as \$40,000 annually. Issued on \$12,500 base. No merchandise to buy. Send for free explanatory booklet. Harrell & Company, Box 8-DD, Louisville, Ill.

BIG Profits — Stamp Social Security Plates Key Protectors. Sample—50c. Catalog Free. General Products, 188-PS State, Albany 10, N. Y.

SELL The Most Revolutionary Automotive Safety Device To Appear In Years. Write Ro-Vic, Inc., Manchester, Conn.

REAL Diamond Rings. Nationally advertised. Sell direct. Make big middleman's profit. No investment. Experience unnecessary. Free catalog, details. Gleam-light, 111-R9 North Columbus, Mount Vernon, N. Y.

SELL new 2-Year Light Bulbs to homes, offices, factories. Burns 450% longer than ordinary bulbs or replaced free! "Guaranteed Profit Plan." Details free! Solar Electric Products, 366 Fifth Avenue, Dept. 9104, New York.

SELL reconditioned spark plugs. Free sample. Lee Plugs, 1608-C Roberts, Houston 3, Texas.

SCHOOL Seniors. Be Popular With Classmates. Have Spending Money Galore. Details Free. Craftcards, Box 235-M, Pittsburgh 19, Penna.

EARN \$12,000 Yearly—Only two sales daily. World's Best Seller, The Holy Bible. (Illustrated.) Protestant or Catholic. Margareta's, P. O. Box 92, Hazleton 6, Pa.

DRESSES 18c, Blouses 39c, Skirts 69c (Used). Free Catalogue. Acc. 196-PS DeGraw, Brooklyn 31, New York.

44 HIGH-GRADE SALESMEN

MAKE Extra Money—Big Cash Commissions plus premiums for you and your customers. Sell Advertising Book Matches—sensational new Tenorama, Glamour Girls, Hillbillies; dozens others. All sizes—Quick daily sales; big repeat business. Free Master Kit makes selling easy—no experience necessary. Superior Match, Dept. P-1059, 7530 Greenwood, Chicago 19, Illinois.

IF you're interested in making money in selling, see the hundreds of exceptional opportunities in Salesman's Opportunity Magazine. Send name for your copy, absolutely free. Tell us what you're selling now. Opportunity, 848 N. Dearborn, Dept. 18, Chicago 10, Illinois.

MAKE Extra Money selling advertising matchbooks. Free catalog and sales outfit. Matchcorp, Dept. PS-109, Chicago 32.

YOUR free copy of World's biggest sales magazine tells you how and where to make more money on your own in selling. Write Specialty Salesman Magazine, Desk 6B, 307 North Michigan, Chicago 1.

\$1,000.00 A month for making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. New chemical used by airforce snuffs out fires instantly. Only \$4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 E. 32nd, Dept. P66E, New York 16.

IT Ain't Sellin'—Just servicing! Stores make money for you every open hour. Tremendously successful! Free Book—tells all. Write Novo, 3855 Lincoln, Dept. H-51, Chicago 13.

BIG Cash Commissions! Complete line 230 shoe styles, also jackets. Postcard brings you free kit! Mason, Chippewa Falls K-187, Wisconsin.

CALENDARS, Printing. Bigger commissions. Experience unnecessary. Catalogues furnished. Forster, 1520 Ardmore, Chicago 26.

MAKE Big Money. Top commissions soliciting delinquent accounts. No investment required. Instructions and supplies free. National Credit, Desk 2, Pickwick Bldg., Kansas City 6, Mo.

45 EDUCATIONAL & INSTRUCTION

LEARN While Asleep with your recorder, phonograph or amazing new "Electronic Educator" endless tape recorder. Details free. Research Association, Box 24-NN, Olympia, Washington.

BOOKKEEPERS! Increase your earnings! Operate your own simplified "Dollar-A-Week" Bookkeeping and Tax Service. Pull or spare time. Details Free. No obligation. Ellis, Box 203, Cedar Grove, North Carolina.

MASTER Watchmaking at home. Free sample lesson. Chicago School, 2328-WW Milwaukee, Chicago 47.

"HOW To Train Horses"—A book everyone who likes horses should have. Free. No obligation. Simply address Beery School of Horsemanship, Dept. 5810 Pleasant Hill, Ohio.

HIGH School Diploma at home. Licensed teachers. Approved materials. Southern States Academy, Station E-12, Atlanta, Ga.

USED Correspondence Courses and Books sold and rented. Money back guarantee. Catalog free. (Courses Bought.) Lee Mountain, Pisgah, Alabama.

BE a Real Estate Broker. Study at Home. Write for Free book today. GI approved. Weaver School of Real Estate, 2018R Grand, Kansas City, Mo.

ENGINEERING and Art Degrees earned through home study. Electronics, Electrical, Mechanical, Civil, Physics, Business Administration, Liberal Arts. When writing, specify course desired. Pacific International College of Arts & Sciences, primarily a correspondence school. Resident classes also carried. 5719-A Santa Monica Boulevard, Hollywood 38, California.

STUDY For Doctor's Degree of Psychology, Metaphysics and Divinity. Correspondence courses only. College of Divine Metaphysics, Dept. P-S, 2811 North Illinois, Indianapolis 8, Ind.

COMPLETE Your High School at home in spare time with 62-year-old school. Texts furnished. No classes. Diploma. Information booklet free. American School, Dept. X746, Drexel at 58th, Chicago 37, Illinois.

WANT a Diesel Job? Higher pay? Advancement? We can help you qualify! Complete Diesel, Tractor and Heavy Equipment and Cummins Diesel Engine Shop-method home-training courses available. Write today. Interstate Training Service, Dept. B-2, Portland 12, Ore.

BIG Money—Operate own Fix-it Shop. Service household appliances, motors, mowers, saws, skates, etc. Free Book. Christy Trades School, A-8801, 3214 Lawrence, Chicago 25.

PROFITABLE welding training available Hobart Trade School, Box P-1092, Troy, Ohio. GI approved. Finest equipment in U.S.A. Reasonable prices. Request catalog.

LEARN Custom Boat Building with proven simplified methods. Instruction book and catalog of 66 designs you can build for profitable resale, \$3.00. Cleveland Boat Co., Box 1651, Cleveland, Ohio.

FINISH High School at home, spare time. No classes. Diploma awarded. Write for Free catalog. Wayne School, Catalog HBA-86, 2527 Sheffield, Chicago 14.

BECOME Tax Consultant. Graduates earn \$1,000-\$3,000 every tax season preparing returns evenings. State approved. Union Institute, Lakewood 1D, N. J.

GO For Civil Service. Go after a U.S. Civil Service job by planned preparation for the entrance tests through Franklin Institute's private home study courses. This privately-owned organization offers courses for Postal, Clerical and other fields. Get information on the Civil Service appointment system, physical, residence and other requirements, veterans' rights, salaries, vacations, retirement, preparation offered, etc. Free Booklet. No obligation. Franklin Institute, Dept. T 13, Rochester 4, N. Y.

OPERATE Restaurant Or Diner. Free Booklet reveals plan. Write School of Restaurant Business, Dept. RC-679, 335 W. Madison, Chicago 6, Illinois.

LEARN Civil and criminal investigation at home. Earn steady, good pay. Institute Applied Science, 1920 Sunnyside, Dept. 337, Chicago 40, Illinois.

FINISH High School or Grade School at home. Books furnished. Diploma awarded. Start where you left school. Write Columbia School, 142a Veterans Blvd., Tucson, Arizona.

EARN While You Learn Auto and Diesel Mechanics. Master this top paying trade. Many graduates earn \$100 a week and up. Approved for Korean veterans. For free information write Dept. No. 262, Nashville Auto-Diesel College, Nashville 3, Tenn.

FREE General Catalog 100 Pages. Text, vocational, educational, instructional subjects Millions of Volumes, new and used Bargain Prices. Books bought, Est. 1902. Long's College Book Co., Dept. PS, Columbus 1, Ohio.

LEARN Piano Tuning Easily At Home. Our Graduates lead field. Our 60th year. Free Booklet. Niles Bryant School, Dept. S, 3711 Stockton Blvd., Sacramento 20, California.

USED Correspondence Courses (Bought and Sold) Money Back Guarantee. Gem, Dept. 10-S, Linwood, New Jersey.

LEARN Body Fender repair including Carburetor—Ignition tuneup at home, spare time. Big money trade includes welding, spray painting, metal work. Write for Free information. Utilities Inst., Dept. XM-32, 2525 Sheffield, Chicago 14.

MANY Make \$1500.00 per month operating collection office. Free details. Franklin Credit, Roanoke, Virginia.

CHINESE, home study. Doctor degree. Chinese Language Institute, P. O. Box 270, Taipei, Formosa.

WIN business success by writing letters that sell. New Manual by expert gives you this money-making power. \$2.95 postpaid. Free literature. Christopher Helinger, Court St., East Syracuse, New York.

DYNAMIC Singing, Speaking, Self-Training. Thrilling! Canfield Voco-Records, 2018-C Fifth Avenue South, Minneapolis 4, Minnesota.

PHYSICAL Therapy and Massage. Home Training. Practice privately or work with doctors and hospitals. Free Catalogue. National Institute, Box 4, 159 E. Ontario, Chicago, Illinois.

FREE book catalogs. Many subjects. Boats, math, occult, money-making plans, how to do it, encyclopedias, 10c and up Sidney Gross, Box 190A, Port Washington, N. Y.

STUDY to be a doctor of psychology, metaphysics or divinity. Correspondence courses only. Neotarian Fellowship, Desk 7, Pickwick Bldg., Kansas City 6, Mo.

PLAY Piano. Beginners' Book \$1.00. Guitar \$1.00. Piano Accordion \$1.25. Teach yourself. United States only. Postpaid. Frank Deisz, 7407 North Leonard, Portland 3, Oregon.

STUDY My Literature! Earn cash prizes! Quarter brings particulars. Ornstein, Du Quoin, Illinois.

BE A Real Estate Dealer! Learn Difference Between Dealer And Broker. No License Required. Learn How I Ran \$300.00 into Five Figure Business. Free ability test and first lesson. Box 563, Glendora, Calif.

CALCULUS or Algebra. Powerful Modern Mathematics. Easy Practical Lessons. First Four \$1. Mathco, 4256-10 Minmor, Cincinnati 17, Ohio.

EARN Degree. Free bulletin. Homestudy only. Midwestern Bible School, 1060 Broadripple, Indianapolis.

INEXPENSIVE Correspondence Courses—Biochemistry, Naturopathy, Homeopathy. Earn degree. Representatives: Auream, Central Valley, New York.

LEARN While Asleep; develop Confidence, Dynamic Will Power, Control Tension, Weight, Smoking, proven techniques. "Transitional Sleep" manual \$3.00. Brochure on request. A.S.R. Foundation, Box 21-z, Henry Clay Sta., Lexington, Kentucky.

DEVELOP your ability to increase income, win faster promotion, prestige. Authentic methods of leaders revealed. Amazing results. Booklet 3 Free. Personal Advancement Counsellors, 7912 Curragh, Burnaby 1, British Columbia, Canada.

LEARN Real Estate Business Fast. Unlimited opportunities. Economical home-study course. Particulars Free. Gordon-Howard Institute, 322 Glover Building, Kansas City 5, Missouri.

HOW To Write Business Letters That really sell. Send 25c. Avalon, 518-2 W. Van-Buren, Chicago 7, Illinois.

46 CONTESTS

"WIN Prize Contests"—complete book 25c. Greenwood, Box 1116-OB, New York City 8.

WIN contest money. General Contest Bulletin gives hundreds of tips. Lists current contests, rules. Sample magazine 25c. General Contests, 1609-A East 5th, Duluth 12, Minnesota.

47 DETECTIVES

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write Wagoner, P-125 West 86th, New York 24.

DETECTIVE Training. Phillips Secret Service System, 1917-C North Kenneth, Chicago 39, Ill.

DETECTIVE Profession. Home Study. Badge. Certificate. Future. Box 41197-G, Los Angeles 41, California.

DETECTIVE Training — Spare Time Study. Fascinating Profession. Men—Women. Big Money. Become Private Detective. We help. Laws 50 States. Detective, Box 490, Times Square Station, New York 36, N. Y.

48 LANGUAGE OUTFITS

LEARN world interlanguage endorsed by Unesco. Free lesson. Esperanto, Middleton, Wisconsin.

52 AUTHORS SERVICE

WANT Your Book Published? Learn how we publish, advertise, promote, distribute. Many successes. Free booklet PS. Vantage, 120 West 31, New York.

53 ADVERTISING AGENCIES, ETC., FOR ADVERTISERS

FREE expert assistance for mailorder advertisers. Ratebook leading newspapers, magazines, 10c. Chicago Advertising Agency, Chicago 4.

2742 RADIO Stations. Addresses. Free Advertising under "Per Inquiry" Plan. "Buyers Guide" Where To Buy Anything. Write. Barnes, Box 490, Times Square Station, New York 36, N. Y.

54 CARTOONING, SIGN PAINTING, CHALK TALKS

YOU can Entertain with Chalk Talks. Catalog 10c. Cartoonist Balda, Oshkosh, Wisconsin.

"HOW To Make Money With Simple Cartoons"—A book everyone who likes to draw should have. It is free; no obligation. Simply address: Cartoonists' Exchange, Dept. 1910, Pleasant Hill, Ohio.

CARTOON Your way to success! Internationally known instructor, Raye Burns, will personally teach you to create original, salable cartoons at home. Cost of Course is very low. Write for free details. Raye Burns School, Box 3583-S, Cleveland 18, Ohio.

55 TYPEWRITERS & OFFICE MACHINES

\$\$\$ SAVED by buying your new Typewriter from us. Nationally famous makes \$77.50 up. Free folder. The Billis Co., Box 279-G, South Lyon, Mich.

56 RUBBER STAMPS & OFFICE SUPPLIES

THREE line, self-inking pocket rubber stamp; plastic case \$1, metal case \$1.80. L. Watson, P. O. Box 162, St. Charles, Illinois.

INDEXED, Cushioned, 3 lines \$1.00, 4 or 5 lines \$1.50. (Script, Print or Old English). Free Stock & Advertising Stamps Circulars, Type Chart, 1 Day Service. Youngers Stamp Shop, Princeton, Iowa.

11c WORD, Minimum 66c. Resembles Sharpest Printing, 1959 Roxy Method. Engresser, Box 82, St. Peter, Minnesota.

PERSONALIZED Pocket Stamp 3 Lines 75c. Display Center, So. Lincoln 7, Mass.

FREE—Rubber Stamp Catalog. Martins, 1425 Major Drive, Jefferson City, Missouri.

57 PRINTING, MULTIGRAPHING, ETC.

FREE Catalog. Postpaid printing. Rubber stamps. D M Press, Sebastopol, Calif.

OFFSET Printing—24 Hour Service—\$6.75—1000 8½x11; \$18.50—5000. National Letter, 300 West 43rd St., New York City 36.

COLOR Or White 8½x11 offset. 1,000—\$5.50; 5,000—\$17.00. Fast! Also artwork, varityping, layout. Promotion, 1,000—\$5.50; 5,000—\$17.00. Fast! Also artwork.

FREE Business Printing Catalog; Samples. Howprint, 723-W Eunice, Webster Groves 19, Missouri.

1000 EMBOSSED Business Cards—\$3.95. Regular, Embossed Or Engraved Business And Social Printing. Samples, Catalog. Stationery Sales, Box 113, New Orleans 3, La.

1,000 BUSINESS Cards. "Raised Letters" \$3.95. Samples. Pioneer, PS-10 Island Park, New York.

FAST Service! 100—8½x11 letterheads \$2.00 Postpaid. R. Cook, (PS), 818 West Gift, Peoria, Illinois.

1,000 EMBOSSED Business Cards \$3.50 Postpaid. Samples. Ellis, 5909 Highlandview, Sylvania, Ohio.

100 6¼ ENVELOPES, 100—5½x8½ Letterheads printed, \$2.00. M. Fortney, Route 3V, Dillsburg, Pa.

500 ¾x2¼ Four-Line Gummed Stickers \$1.00. Red Border \$1.50. Moritz Printer, Saginaw, Michigan.

1000 NAME & Address Labels \$1.00. In plastic box. Youngers, Princeton, Iowa.

QUALITY Printing—Business Cards, 1,000 \$3.25—Samples Free. Schlake, H-8, Alexandria, Kentucky.

LETTERHEADS, Circulars, etc. Price list. Valaitis, 1705 South 2nd, Phila. 10, Pa.

BUSINESS Cards \$4.00 thousand 7 lines raised printing. Pocket rubber stamp 3 lines \$1.00 postpaid. List free. H. F. Price, 108 East Fourth, Los Angeles 13, California.

MIMEOGRAPHING—Highest Quality, Super Quick Service. Send Copy For Exact Quotation. Robinson, 269-A Liberty, Paterson 2, N. J.

58 PRINTING OUTFITS, SUPPLIES

PRINTING Outfits, type, supplies. Send dime for illustrated supply book and samples. Kelsey, Inc., H-8, Meriden, Conn.

ILLUSTRATED Silk Screen Printing Instructions, \$1.00. Details Free. Pioneer Valley Stencils, Box 162-E, Springfield 1, Mass.

RUBBER Stamp Presses. Hydraulic Operated. Electrically heated. Sizes 5"x8", 8"x12", 10"x15", starting outfits, supplies. Printing Presses, supplies. Custom Manufacturing, 507 N. Jefferson, Springfield 2, Missouri.

PRINTING Presses, Type, Supplies. Lists, 4c. Turnbaugh Service, Mechanicsburg, Pa.

RUBBER Stamp Makers Supplies. Kiewiet, 2025 Barney Road, Kalamazoo, Michigan.

MAKE Your Own self-molding rubber stamps and printing cuts. Plexirubber, Argyle 2, Wisconsin.

TYPE cases, supplies, from manufacturer. Catalog. King McKay Company, 23179 Telegraph Road, Detroit 41, Michigan.

60 FOR INVENTORS

INVENTORS, if you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 30A, 635-F St., N.W., Washington 4, D. C.

INVENTORS! Consider our offer first before selling or licensing your invention on a cash or royalty basis. Patented. Unpatented. Inventions on Demand, 79 Wall Street, New York 5, N. Y.

COLLEGE Trained brokers market your patented, unpatented inventions. Write International Services, 3928-B Lorain, Cleveland 13, Ohio.

INVENTORS—Save High Fees! Apply for your Patent yourself. New "Do-It-Yourself" Patent Kit now makes it easy. Free "Registration Form." Miss Clare Arden, 80 Wm. Penn Annex, Philadelphia 5, Penna.

WE have the markets if you have the ideas. Harvey Engineering, Cambridge 1, Maryland.

INVENTORS Free Information. How And Why. You Can Have More Protection On Your Ideas. Then Patents. Each Handling \$2. A. B. Research, 1940 Winona, Chicago 40, Ill.

IDEAS For New Products Make Money. Cash Buyers Waiting. Write Inventors Creative Service, 354 South Spring, Los Angeles 13, Calif.

INVENTIONS wanted now by my Manufacturer Clients. Patented. Unpatented. Write Gilbert Adams, Patent Broker, 80-B Wall Street, Financial District, New York City.

INVENTORS' Determine the patentability of your invention. Searchers of the Patent Office records administered professionally for only \$6.00. For free invention protection forms and dependable service write Washington Patent Office Search Bureau, 1426 G. Street N.W., Washington 5, D. C.

INVENTIONS, Ideas, Patents wanted for sale development by manufacturers. Cash-Royalties. George Spector, Licensed Professional Engineer, Invention Broker, 3615 Woolworth Bldg., New York.

PATENT Searches \$6.00. 48-hour service. Free Invention Protection forms. Write Raymond L. Smith, Patent Searcher, 620 Sheraton Building, Washington 5, D. C.

PATENT Searches \$6.00. 48-hour airmail service. Invention Protection forms free. Write Patent Engineering Service, 711 14th Street N.W., Washington 5, D. C.

PATENT Searches including copies of nearest patents. \$6.00. Reports airmailed within 48 hours. More than 100 registered patent attorneys use my service. For Free invention protection forms. Write Miss Ann Hastings, P. O. Box 176, Washington 4, D. C.

61 INVENTIONS WANTED

INVENTORS: Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information free. Institute of American Inventors, Dept. 30C, 635-F Street, N. W., Washington 4, D. C.

INVENTIONS wanted. Patented; unpatented. Tremendous Manufacturers lists. Global Marketing Service, 2420 77th, Oakland 5, Calif.

INVENTORS—Get The Best Offer First! Patented or unpatented. Write Carl Sommer, Director, Industrial Invention Sales, 3136-B Sylvania Ave., Toledo 13, Ohio.

INVENTORS Contact Ten Patent Or Sales Offices . . . \$1.00. Box 491, Coplay, Pa.

INVENTORS! Consider our offer first before selling or licensing your invention on a cash or royalty basis. Patented. Unpatented. Inventions on Demand, 79 Wall Street, New York 5, N. Y.

INVENTIONS Wanted: "Patented"—"Patent Pending." 28 Years experience Promoting Inventions. National Service Bureau, 3122 Meramec, St. Louis 18, Missouri.

ARE you interested in offers from reliable manufacturers for your invention? Patented, unpatented. Harvey Engineering, Cambridge, Maryland.

INVENTIONS wanted immediately for promoting on cash or royalty. Patented, unpatented. Free booklet outlines royalty rates, requirements. Write Kessler Corporation, 710-1W, Fremont, Ohio.

INVENTIONS, Ideas, Patents wanted for sale development by manufacturers. Cash-Royalties. George Spector, Licensed Professional Engineer, Invention Broker, 3615 Woolworth Bldg., New York.

CASH Buyers for inventions. Write National Inventors Institute, Box 4125, Washington 15, D. C.

INVENTIONS wanted now by my Manufacturer Clients. Patented. Unpatented. Write Gilbert Adams, Patent Broker, 80-B Wall Street, Financial District, New York City.

FREE List Needed Inventions. Protection Form. Inventory Sales & Engineering Bureau, Dept. 190-E, Box 4973, Washington 8, D. C.

SUPERIOR promotions. Patented, unpatented inventions. Information booklet, free. Superior, 338-342 North Rodeo, Beverly Hills, California.

INVENTIONS Wanted for Manufacturers. Free Details Write—Allen, Dept. D, 712 Davis Bldg., Dallas 2, Texas.

64 MODELS, MODEL SUPPLIES

SHIP Models. Most complete line in New England. Kits, fittings, plans, books, tools, engines, motors. Illustrated catalog 35c. James Bliss and Co., Inc., Dept. PS, 342 Atlantic Avenue, Boston 10, Massachusetts.

SHIP and yacht model fittings; blueprints. Send 35c for illustrated catalog #29 listing hundreds of items. A. J. Fisher, 1002-2 Etowah Ave., Royal Oak, Michigan.

SCALE model materials for building model homes and architectural buildings of any type. 1/4" and 1/8" scale. Send 25c for catalog. A&B Model Builders, Dept. S, 454 Donovan Road, Kansas City, Kansas.

SHIP Model Kits And Fittings: Clippers, Schooners, Frigates, Brigs, Plaque Models, Plans. Catalog And Book List 25c. Model Shipways, Box 85, Bogota, New Jersey.

"POWER Drives Handbook"—36 pages illustrating many types motor drives for model autos, boats, displays, turntables, etc. Mail 25 cents cash, returnable first order \$3.00 or more. Wilson's of Cleveland, Dept. PS, 425 Lakeside N.W., Cleveland 13, Ohio.

LIONEL Trains Big Discounts Catalog 25c. Mack Bros., 2041 Chicago Ave., Chicago 22.

FLEISCHMANN 40 Model Railroads and Live Steam Engines Catalog 50c. Merzbach, 545-5th Ave., New York 17.

"ST" Steam Engine Castings, Fittings Catalog 15c. Ship Models Ltd., 186 Summer, Andover, Mass.

MODEL Catalogs: Ships, Fittings 50c Planes Engines Radio Control 75c Railroads \$1.00. Collector's Soldiers 25c General Model Fun 15c. Polk's Hobbies, 314 Fifth Ave., New York 1.

ROCKET Supplies. Nozzles, Cones, Tubes, Specials Also Made, Catalog 10c. Sky Mfg. Co., Mineral Point, Pa.

POWER Models. Unusual Steam, Gasoline And Traction Engines, Fittings, Metals. Accessories—Lock Washers, Socket Set Screws, Rivets. Comprehensive 92-Page Catalog \$1.00. Charles Cole, Ventura, Calif.

65 HOME CRAFTSMAN

FREE "Do-It-Yourself" Leathercraft Catalog. Tandy Leather Company, Box 791, N30, Fort Worth, Texas.

LEARN Art Metalcraft and jewelry making. Complete, inexpensive, home training course now available. Special tools and materials furnished. Write for free booklet. Interstate Training Service, Dept. L-2, Portland 12, Oregon.

FREE! New supply catalog loaded with money-making costume and shell jewelry designs. Modern Craft, Box 11088-PN, Saint Petersburg 33, Florida.

PAINT Sprayer. 7 times faster than brushing. Sensational offer! Free Folder. Imasco, 1829 S. State, Chicago 16, Illinois.

WOODWORKING and Cabinetmaking course for beginning and advanced home craftsmen. Only complete low-cost home training program available. Write for free booklet. Interstate Training Service, Dept. G-2, Portland 12, Oregon.

NEW big illustrated catalog. Supplies for Leathercraft, Metalcraft and numerous small inexpensive crafts. Prompt shipments. Top values. Latest ideas. Send 10c today to J. C. Larson Co., Dept. 9126, 820 S. Tripp, Chicago 24.

FREE. New plans catalog. Make 2400 things. Fun. Profit. Craftplans, 1322-B Wabash, Chicago 5.

WOODWORKING Catalog and Manual. Brand New 1960 Edition! World's largest selection of domestic, imported woods—materials, tools, supplies, do-it-yourself plans, projects. 130 pages, many full color. Send 25c (refunded first order). Year's subscription to "Chips and Chats" included Free. Constantine, 2050 Eastchester Road, Dept. P-102, New York 61, N. Y.

GRANDFATHER clock movements, case plans, kits. Wholesale catalog 25c. Mason-Sullivan, Noroton 2, Conn.

STYLECRAFT "Pretraced" leather kits. Handbags, Billfolds, Filigree Belts. Patterns on leather. Just carve, assemble and lace. "Precarved" kits also available. Send 25c for catalog, free folder. Refunded first order. Apache Leather Company, 2804 E. Washington St., Phoenix, Arizona.

SQUAREKNOTTERS: Make belts, handbags, lanyards, dog leashes, etc. Special offer! Beginner's book, catalog and quality cord samples 25c. P. C. Herwig Co., Dept. 71-P7, 39 Henry St., Brooklyn 1, New York.

FREE Fluorescent Bargain Catalog— Fixture kits, Fixtures, Circulines, Parts. Shoplite, 650S Franklin, Nutley 10, New Jersey.

LARGE illustrated Catalogue 25c. Paces's, Box 279, Bradenton, Florida.

BELT Sander—low cost. Easily made from plans. Free literature. Gipple, 121-B School, Buffalo 13, N. Y.

89 JIG saw patterns. Beautiful shelves, Ornaments, Novelties. Plus "How Where to Sell" \$1.00. Mastercraft, 114S, 7041 Olcott, Chicago 31.

!!FREE!! Leathercraft catalog. Hundreds of new items. Write MacPherson Bros. Leather Company, Dept. A, 730 Mission St., San Francisco 3, Calif.

NEW Idea Plans. Free Catalog. Marra, 1337 Kenilworth, Lakewood 7, Ohio.

KNOCKDOWN cedar chest and lumber, free price list. Bedford Lumber Company, Shelbyville, Tennessee.

KILN Dried Walnut Cherry, Etc. Hardwoods. Blocks Boards And Squares. Midland Lumber Company, P.O. Box 262, Savannah, Mo.

FREE Leathercraft Catalogue. Kirkpatrick Leather Company, Box 637-A62, Gainesville, Texas.

66 DO IT YOURSELF

FREE "Do-It-Yourself" Leathercraft Catalog. Tandy Leather Company, Box 791-X32, Fort Worth, Texas.

SAVE 50% Direct From Factory. Door Canopies, Awnings, Patios. Assemble your own top with Do-It-Yourself Kit and screwdriver! Factory assemblies sides. Easy installation bar! Nationally accepted product. Get free measuring chart. MacPherson Mfg., 8974 St. Charles Rd., St. Louis 14, Mo.

MOSAIC Tile—11x11 Sheet \$2.75 ppd. Send color we match. Makransky, 1567 Townsend Ave., New York 52.

PLAYER Piano Repair Manual illustrated \$2.00. Hofele, 3436 Ridge, Dayton 14, Ohio.

DRIVERS Licenses. Identification cards. Photos—torn or otherwise spoiled? You can fix that Yourself in seconds with Ply-O-Film, a revolutionary self-sealing, crystal clear plastic film. Gives lifetime protection. Kit contains 8 sheets 6"x5". \$1.00 postpaid. Billis Co., Box 279-F, South Lyon, Mich.

67 OLD GOLD, JEWELRY, WATCHES, ETC.

USED and new watches \$2 up. Free List. Southern Watches, 5-PS So. Wabash, Chicago 3.

HIGHEST Cash For Old Gold, Jewelry, Gold Teeth, Watches, Diamonds, Silverware, Spectacles, Platinum, Mercury. Free information. Rose Refiners, Heyworth Bldg., Chicago 2.

FREE catalog. Costume jewelry parts. Supplies. Reasonable prices. Fast service. Guaranteed quality. Unique merchandise. Folsom's, Box 52, Medford 55, Massachusetts.

COSTUME Jewelry Supplies. Settings, Rhinestone, etc. 88 page illustrated catalog, 30c. Milady, Box 1328 G.P.O., New York City (1).

HIGHEST Cash Paid for Old Gold, Jewelry, Gold Teeth, Diamonds, Watches, Silver, Mail Articles Today. Information Free. Chicago Gold Refining Co., 6 E. Monroe, Dept. 1357, Chicago 3.

GOLD, silver, platinum, jewelry, watches, spectacles, teeth, rings, coins wanted. Highest cash immediately. Information free. Wilnot's, 1067B Bridge, Grand Rapids 4, Michigan.

GOLD, Silver, Platinum—watches, spectacles, jewelry and teeth. No obligation to sell. Send Scrap for Best Price. Electro Company, 1042 Highland Ave., Buffalo 23, New York.

WATCHES Below Wholesale—Nationally Advertised 17 Jewels From \$12.90; Lifetime Guarantee. Keystone Industries, 1311 Morse Avenue, Chicago 26, Illinois.

10 SWISS Watches \$18.00. Catalog 25c. Berkowitz, 1150 Castlehill, New York City 62.

69 FOR THE HOME

FOAM rubber furniture cushions—Factory seconds 50% discount. Free catalog. Perma-Foam, 390-A Nye Ave., Irvington, New Jersey.

LUSCIOUS, Natural California sun-dried fruits, tree-ripened dates, raw silver sage honey, Royal Jelly, nuts. Free Brochure. Tontz Honey Farm, Elsinore 7, California.

70 OF INTEREST TO WOMEN

MAKE \$25 to \$35 weekly addressing envelopes. Our instructions reveal how. Glenway, Box 6568, Cleveland 1, Ohio.

DRESSES 24c; Shoes 39c; Men's suits \$4.95, trousers \$1.20. Better used clothing. Free Catalog. Transworld, 164-H Christopher, Brooklyn 12, N. Y.

YOU Can start for Civil Service career through home study. Attractive salaries, benefits. Free booklet. No obligation. Private organization. Franklin Institute, Dept. T15, Rochester 4, N. Y.

ADDRESSERS wanted: Write Hughes Advertising, 46 E. Broad, Shillington, Pa.

CAKE Decorating. Amazing New Method. Details Free. Decorating Institute, Box 648M, Wantagh, N. Y.

MAKE \$20-\$30. Weekly sparetime at home. using your Scissors, Typewriter or Sewing Machine! Send 25c coin for interesting Catalog! Stillwater, Box 337-E, Morris Plains, N. J.

HOUSEWIVES—earn \$60 weekly at home. No selling. Dignified work. Opportunities. P.O. Box 8057, Fort Worth, Texas.

\$200. MONTHLY Possible. Sewing Babywear! No house selling. Free Information. Send name to Cuties, Warsaw 14, Indiana.

71 FOR SALE MISCELLANEOUS

WAR Surplus Bargains! New government releases arrive constantly. Save Up to 80%. Blankets, boots, cots, tents, wearing apparel, etc. Send for Free War Surplus Catalog. Sioux Falls Surplus Store, Sioux Falls, South Dakota.

GOVERNMENT surplus sales—Latest Informative Directory \$1. Hoover, 110 Haddon, Westmont, N. J.

SHOPPING Bag: fishnet design, plastic handles, \$1.00. Free details. IFA, Box 3051-A, Santa Barbara, Calif.

72 WANTED TO BUY

IMMEDIATE Cash For Used Plating Equipment. Send Description. Equipment Division, 1624 East First, Los Angeles 33, California.

QUICKSILVER, platinum, silver, gold. Ores analyzed. Mercury Terminal, Norwood, Massachusetts.

74 RAZOR BLADES, SHAVERS

MEN! Shave with ease. Information Free. Raysol, PS, Poplar Bluff, Missouri.

FREE Sample—New Double, Single edge razor blades, 80—\$1.49 guaranteed. Jordan's, 552 West O'Connor, Lima, Ohio.

75 TATTOOING SUPPLIES

LEARN profitable, fascinating Tattooing. Illustrated Information \$1.00. Zeis, 728-B Leslie, Rockford, Illinois.

77 GEIGER COUNTERS & TREASURE FINDERS

TRANSISTOR Treasure Detectors, underwater detectors. Many models. Free catalog. Gardiner Electronics Co., Dept. 1, 2545 East Indian School, Phoenix, Arizona.

MONEY for you in buried treasure—coins, gold, silver . . . can be found with Goldak Transistorized Locators. Five models including Underwater Locator priced from \$79.50. Free literature . . . Authentic books of known treasures available. Goldak Company, 1540 West Glenoaks Blvd., Glendale 1, California.

GOLD-Silver Detectors. Geiger Counters. Violites for tungsten, etc. Best available. Guaranteed. Information Free. Detectron, 12970 Bradley Ave., Dept. 44, Sylmar, Calif.

SEARCHING For Treasure? Transistorized electronic M-Scope locates it. Lightweight. Guaranteed. From \$59.50. Easy Terms. Free Catalog. Fisher Research, Dept. C-2, Palo Alto, Calif.

METAL Locator Kits and Assembled Models from \$39.90. Transistorized and Underwater Models Available. Free Catalog. Electronic Applications, Dept. S, Box 8, Arlington 10, Virginia.

TREASURE Map of all 48 states \$2.00. Map Cache, Box 287e, Burlingame, California.

TREASURE! Map, Handbook 25c. Locators. Howe, 811 Kansas, Atchison, Kansas.

78 WATCH REPAIRING

WATCH and clock repairing books. Free catalog. North American, 2320-BL Milwaukee, Chicago 47, Illinois.

WATCHMAKERS', Jewelers', Lapidaries' Catalog 25c. Bengal, 8912 Venice, Culver City, California.

WATCHMAKERS Journal contains instructions in watch repairing. Sample copy 25c. Dean Co., Box 3218-S, Daytona Beach, Florida.

WATCHMAKERS' Tools, Materials, Supplies, Watches. Catalog. Gales, Box 1000, Chicago 90, Illinois.

79 MISCELLANEOUS

ELECTRONIC Sleep Inducer. Completely harmless. Free literature. Gardiner Electronics Co., Dept. 26, 2545 East Indian School, Phoenix, Arizona.

CIVIL Service. Learn about this field of work and how you can prepare yourself by home study for a high entrance mark. Private organization. Free booklet. No obligation. Franklin Institute, Dept. T14, Rochester 4, N. Y.

ORNAMENTAL Iron designs. Book of 1700 beautiful, practical designs for railings, columns, etc. Free literature. Cunningham, 3881 South 3200 West PS-31, Salt Lake City 4, Utah.

SIMPLIFIED, Improved—Algebra—Mimeographs—Windmills. Inventor: Ziemba, I-6123 Orchard, Dearborn, Michigan.

MIRROR Transparent Back. Watch. Photograph People Secretly. 8"x10", \$2.00; 16"x20", \$5.00. One-Way Mirror, PS-959, Box 625, Mt. Vernon, N. Y.

"AMERICA'S Last Frontier" Challenges You! For Scenic Alaska. Pioneers, Adventures, Sportsmen, Tourist. Info. \$1.00 On Opportunities. Settlement, Employment, Fish, Game, Etc. Alaska Info., 2731 So. Homan Ave., Chicago 23, Illinois.

A most helpful device. "Multiflex" rolled out pie crust lifter. \$1.25 postpaid. Kellogg, Box 155, Stratford, Connecticut.

COLORCADE Water Fountains. Automatic Stroboscopic Color Effects. 809 Delaware, Berkeley, California.

RECEIVE—Magazine Samples, Mails, Catalogues, Bargains From Everywhere. Get Listed 25c. Rorick's, Cincinnati 26, Ohio.

RECEIVE Samples, magazines, catalogs, opportunities, 10c. Starr, B-7092, San Antonio 10, Texas.

CHECK the validity of arguments or inferences with the Melzer Validascope, a manually operated logical calculator. \$2.00 postpaid. Dr. John Melzer, Professor of Philosophy, Alabama Polytechnic Institute, Auburn, Alabama.

DRESSES 18c. Coats \$1.98. Shoes 99c (Used). Free Catalogue. Ace, 196-SP DeGraw, Brooklyn 31, New York.

OLD Original 1903 desk telephones. Working order, oak crank ringer, box included. \$5 each, f.o.b. Telephone Company, Turtle Lake, Wis.

CESSPOOLS, septic tanks, all clogged drains cleaned, deodorized by new enzyme product. Saves annual pumping, digging, etc. Harmless to plumbing, pets or people. Simply flush through toilet. Six months' supply only \$2.95. Mailed anywhere in U.S.A. Electric Sewer Cleaning Co., Allston 34, Mass.

RECEIVE mails, magazines, samples. Your name in numerous mailing lists 25c. Greenwood, Box 1116-CK, New York City 8.

79A WESTERN MERCHANDISE

WELLS-Fargo Reward Posters 12/\$2 Jesse James 50c. Frontier, Box 1074SP, North Decatur, Ga.

79B SWAP

READ "Trading Post Magazine", 10c. Thorne's, 525 Dewey, Jackson 35, Michigan.

80 PERSONAL

VITAMINS—Send \$1.00 for Special Introductory 90-Day Supply Multi-Vites. Similar formulas cost \$3.00 retail. Free Catalogue Guide-Book included. Vitamins, Box 4435-B, Philadelphia 40, Pa.

MEXICAN Legal Matters. A. Espejo, Box 234, Hermosillo, Sonora, Mexico.

BORROW \$50 to \$600 By Mail. Quick, Easy, Private. No Co-Signers. Repay in 24 small monthly payments. For the amount you want write today to Dial Finance Co., 410 Kilpatrick Bldg., Dept. K-1, Omaha 2, Nebraska.

"RULE Others with your Thoughts." Telepathy. (Details—stamp.) Clarion, Box 9309-S6, Chicago 90.

"X-RAY Eyes"—Staggering power. Adults. Details—send stamp. Clarion, Box 9309-X6, Chicago 90.

PSORIASIS Sufferers: Discouraged? Here's help! You pay nothing unless satisfied. Free details. Pixacol, Box 3583-SP, Cleveland 18, Ohio.

LOANS By Mail. \$50 To \$600 For any purpose. Employed men and women eligible. Confidential. 2 years to repay. Write for free loan application. American Loan Plan, City National Bldg., Dept. PS-9289, Omaha 2, Nebraska.

TROUBLED? Love? Money Problems? I'll help. Solution available, if instructions followed. Strictly personal. Wamsteker, Box 10-P, Ottery, Cape, South Africa.

BORROW By Mail. \$100-\$600. Anywhere. Air Mail Service. Postal Finance, Dept. 16-T, 200 Keeline Building, Omaha 2, Nebraska.

CHESS Instructions by mail; circular 10c. Eugene Cowan, Driggs, Idaho.

MEXICAN Law. Attorney Ceniceros. Apto. 79-Cd. Juárez, Chih., Mexico.

SUCCESS-Minded? Want to be somebody? Wake up your mind with my "Thought and Behavior Control" Reading Plan, and be what you desire. Many helped. Rush request for exciting free lecture. President, Box 1924-W, Louisville 1, Ky.

SUPER memory overnight! Success guaranteed! Bijou, Box 1727-V, Hollywood 28, Calif.

ARTHRITIC. Other Pains. Positive Relief: Pensue, 1324 Keyser, Scranton 11, Penna.

"HOMEBREWED Wines, Etc." Complete Book \$1.00. ABC Publications, Box 849, San Francisco 1-DR, California.

80A REMAILING SERVICE

LETTERS Remailed—Received—Forwarded. Details free. Beasley, 1829-W Claiborne, Richmond 20, Va.

MEXICO remails 3 for \$1.00 includes postage. Carlos, Aptdo. 266, Cuernavaca, Mexico.

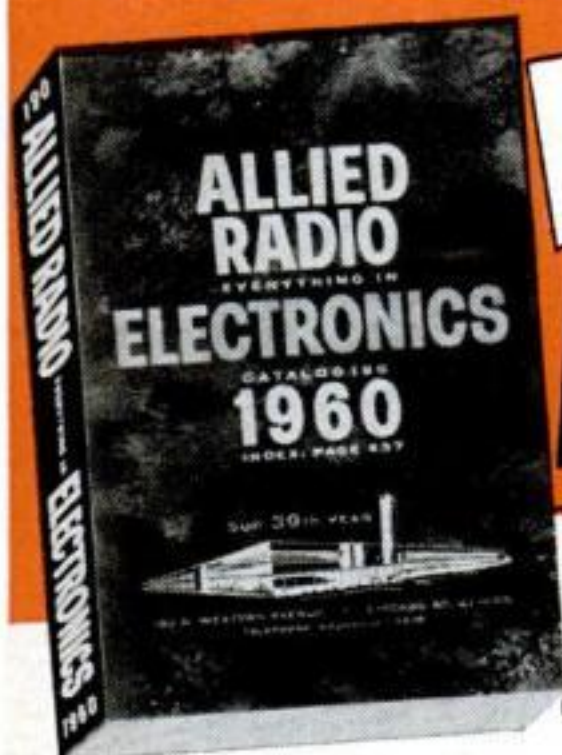
CLEVELAND, Ohio Remails 25c. \$3.00 monthly. Doctor's Service, 3790 Washington.

SECRET Mail Receiving-Forwarding System \$4 Month. Hedgpath, Box 830, Alhambra 24, California.

DETROIT Remails 25c; month \$3.00; Classifieds \$1.00; Robert Lee, 1874 Pinetree, Trenton, Michigan.

FREE ALLIED'S

MONEY-SAVING 1960 ELECTRONIC SUPPLY CATALOG



value-packed
SEND FOR IT!

SAVE
ON EVERYTHING
IN ELECTRONICS

EASIEST TERMS
only \$2 down on
orders up to \$50

WORLD'S LARGEST STOCKS

Send for the most widely used buying guide to everything in Electronics for Experimenters, Builders, Amateurs, Servicemen, Engineers and Hi-Fi enthusiasts. Save on:

- KNIGHT-KITS®—Best in Build-Your-Own
- Everything in STEREO Hi-Fi
- Hi-Fi Music Systems and Components
- Tape Recorders & Phono Equipment
- Public Address & Paging Systems
- TV Tubes, Antennas, Accessories
- Amateur Station Equipment
- Latest Test & Lab Instruments
- Parts, Tubes, Transistors
- Everything in Tools & Technical Books

SAVE on everything in Electronics at ALLIED—get fastest service, expert personal help, guaranteed satisfaction. Send today for your FREE 1960 ALLIED Catalog.

Everything in Electronics
from One Reliable Source

our 39th year



ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-K9
100 N. Western Ave., Chicago 80, Ill.

☐ Rush FREE 1960 ALLIED Catalog.

Name _____

Address _____

City _____ Zone _____ State _____

SEND FOR
FREE
CATALOG



FIBERGLASS or PLYWOOD

\$41.95 Up, Frt. Pd.

EASY
TERMS
FREE
CATALOG



50 Models
8—18 Ft.

Cruisers, runabouts, convertibles, fishing. Pre-assembled, pre-formed units. Perfect assembly by anyone. Equal factory-built. Save you 1/2 to 3/4. Catalog has natural color photos, details; paint, trailers, accessories, Fiberglass supplies. WRITE TODAY.

LUGER BOAT KITS

Dept. A-10, 9200 Access Rd., Minneapolis 20, Minn.

TREMENDOUS PROFITS

with Hagen's



100%
PROTECTION

EXCLUSIVE
TEAR-GAS
PENCIL!

SELLS EASY TO SERVICE STATIONS, BAR-CAFE WORKERS, STORES, LOAN OFFICES, BANKS, HOMES! Discharges tear-gas to instantly stop, stun and incapacitate the most vicious man or beast. Effective substitute for firearms; leaves no permanent injury. No selling experience needed. Handle as profitable sideline, soon you'll sell it full time. Start now! Send \$5.95 for complete demonstration kit of Automatic Tear-Gas Pencil, 10 Demonstrators & 3 Tear-Gas Cartridges. Not sold to minors. State age with order.

HAGEN SUPPLY CO., Dept. P-109, St. Paul 1, Minn.

WHAM-O BLOWGUN SET

for target and hunting

This amazing gun has accuracy like a rifle. Compression of breath in barrel gives terrific air power. You won't believe your eyes!



SPECIAL
\$1.98
postp.d.

Can shoot over 150 ft. Average person can hit a 2" bullseye at 30 ft. Excellent for shooting small game. For target fun with friends, set up in patio or den. Set includes four 5" steel darts, 4 suction-cup target darts, range target. Extra set 10 darts \$1.

Satisfaction guaranteed. At sports dealers or send 1.98 to: WHAM-O MFG. CO., Box K-10, San Gabriel, California

GOVERNMENT OIL LEASES LOW AS \$1 PER ACRE.

You do no drilling, pay no taxes, may realize a king-size profit without ever leaving home. Write for free map and literature.

AMERICAN OIL SCOUTS, Dept. PS

8350 Santa Monica Blvd.

Los Angeles 46, Calif.

BRITISH PILOT'S & OFFICER'S

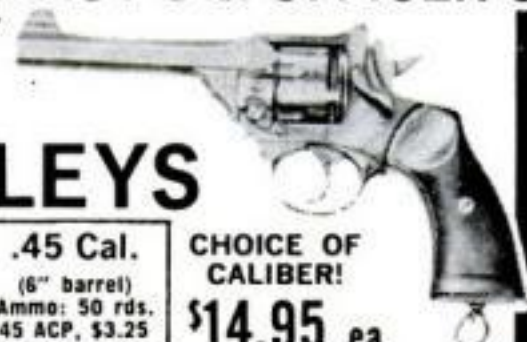


WEBLEYS

.38 Cal.
(5" barrel)
Ammo: 50 rds.
.38 S&W, \$3.50

.45 Cal.
(6" barrel)
Ammo: 50 rds.
45 ACP, \$3.25

CHOICE OF
CALIBER!
\$14.95 ea.



Superb revolvers manufactured by England's most famous pistol mfr., producer of fine pistols for 100 yrs. 6-shot revolvers: Fires double action, also has broad hammer spur for fast single action shooting. Ordnance tested, stamped with British Crown and Broad Arrow proof marks. Condition very good, mechanically perfect. Add \$3 for select grade, (practically unfired cond.). Fires standard factory loaded U.S. made ammo. ORDER ON FREE TRIAL! 10-day money back guar. Send check, cash or M.O. \$5 deposit for COD. Shipped FOB Los Angeles. SPECIFY CALIBER CHOICE! In Calif. order through local dealer. Dealers inquire.

WEAPONS, INC. 11029 Washington Blvd. Culver City, 31, Calif.

Bean's

1959 Free Fall Catalog



Hunters and campers will find many practical items in our 108 page fully illustrated Fall Catalog. Shows hunting footwear, clothing and 375 items of interest to both men and women. 130 items are of our own manufacture.

L. L. Bean, Inc., Dept. 145, Freeport, Maine
Mfrs. Hunting and Camping Specialties



MANUFACTURE this BEAUTIFUL OUTDOOR FIREPLACE in YOUR OWN BACKYARD

\$4.00 worth of sand and cement produces this attractive fireplace. Sells on sight from \$60 to \$80. Easy to start your own profitable business in your backyard. No experience necessary. Big profits. Exclusive manufacturing territories. Write immediately for full details. General machines sold to U.S. Government. Dealer inquiries invited.

GENERAL ENGINES CO., INC. Dept. SF-109 Rt. 130
Thorofare, N. J.

FREE GERMAN STEEL HUNTING KNIFE



4-INCH BLADE

We give you handiest hunting and fishing knife you've ever had! Has 4-INCH LONG highly tempered steel blade—VERY SHARP! Attractive handle. We send knife FREE to acquaint you with our below-wholesale bargains. Please send 25c for handling. NO LIMIT—but send 25c handling for each knife. Order TODAY! HUNTING KNIFE, Dept. K-443, Box 881, St. Louis, Mo.

JEEP OWNERS

Re-Power NOW with a V-8 or 6 Cyl engine—Use

Ford - Chev - Mercury - GMC - Pont - Stude - Dodge or Plymouth in Jeeps, Jeepsters, Sta-Wgn. Trucks, Kaiser & H. J. cars. Conversion kits \$45.35 to \$56.90. Want fast action? Give us full information, send \$15.00 Dep. and we will ship correct kit. Bal. COD. Send full amount for prepaid shipment. Wire, phone or write today. Details FREE.

HOOSIER MACHINE PRODUCTS CO.

314 S.E. 6th St. Phone CR6-3442 Pendleton, Oregon

ROCKET PLANS

**BUILD YOUR OWN WORKING MODEL
SINGLE AND TWO STAGE**

Detailed 12 pg. illustrated PLANS for:
Rocket construction for 3/4" to 3 1/2" dia. rockets
Launching platform
Numerous solid fuels
Electrical ignition
How to measure firing height
Safety rules — Many other features

Designed for high altitude performance. Our plans may be modified to your own design and size.

Not a Toy — All For Only - \$1.00
SATISFACTION GUARANTEED

ROCKETS, Dept. A-3

4106 Beecliff, Columbia, S. C.

Meet a Great New Semi- Automatic .22—from Marlin!



Here's the only rifle that gives you the advantages of semi-automatic action—18 shots as fast as you can pull the trigger! —combined with the extra accuracy of

Marlin's exclusive Micro-Groove Rifling! It's the new Marlin Model 99! Chambered for .22 Long Rifle cartridges, the Model 99 has a solid receiver top drilled and tapped for an adapter base for tip-off scope mounting. It's a rugged, ready-for-action sporter, weighs only 5 1/4 pounds. Priced at \$39.95, only \$4.00 down payment under Marlin's Pay-Later Plan. Ask your dealer about the low combo price of the Model 99 with Marlin Micro-Vue 4-Power Scope—you save \$4.95.

Prices subject to change without notice

Marlin

Micro-Groove Rifles

Marlin Firearms Company, New Haven, Conn.

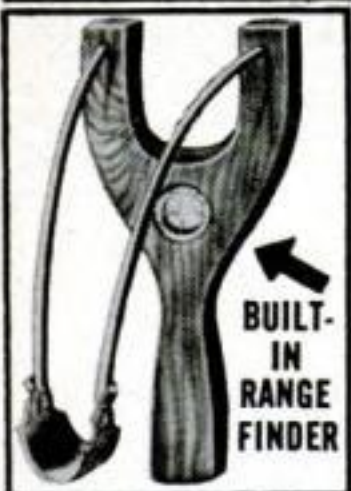
Please send me the Marlin illustrated catalog, 24 page Target & Game Record Book, plus a Home and Field Rustopper Kit. 25¢ enclosed for handling and mailing.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Heavy Duty Slingshot Kills Small Game



AMAZING 44 LB. PULL — POWERFUL!

New invention! Extra powerful slingshot gives longer range & accuracy. Extra thick Quadrangular slings with amazing 44 lb. pull! Kills small game, routs pests. Ideal for target practice. Different from light duty slings. Packs terrific wallop! Special cross-bar range finder assures greater accuracy. Same type used on cameras, rifles. Thick leather pouch. Brass riveted slings. Ebony finish wood. Accurate! Powerful Super silent! Hits like rifle. **FREE:** 100 Killer Steel Pellets. Sharp cutting edges. Deep penetrating! Now half price! Send only \$1 plus 25 cents mailing costs. Special: Extra Pellets, only 75c for 400. Satisfaction guaranteed or money back.

THORESEN INC. Dept 7-L-943 585 Water St. New York 2, N.Y.

REG. \$1.98

— NOW —

\$1

FREE

**100 KILLER
STEEL PELLETS**

FORTUNES IN DIVING

Train at Home in Spare Time

Write Today for Amazing Free Booklet

Here is one of the greatest opportunities of our time. Make big money fast in Skin and Lung Diving. Trained divers needed in hundreds of industries and by government. Build a successful business of your own. Hourly rates among highest paid in any field. Training program by E. R. Cross, world famous master diver. Get the facts now. Mail coupon for **FREE BOOKLET TODAY!**

DIVEMASTER. Dept. PS-109

5637 W. 63rd Place, Chicago 38, Ill.

Send me free information about Diving.

Name _____ Age _____

Address _____

City _____ State _____

THE ORIGINAL PACKAGED BOAT KITS

• World's Largest Line—New Fiberglass Hulls. Over 200 styles Boats-Kits, Formed-Hulls, Semi & Custom finished. All types: Prams, Cruisers, Racers, Inboards, Outboards. Easy to build. Professional results. Dealers—Agents Inquire.

Send 25¢ for 3-Color Catalogs 52 pg. Kit Catalog plus 20 pg. Hardware and 8 pg. Armor Glass books. **(SPECIAL OFFER!)**

All 3-colored CATALOGS plus "Boating Handbook"...all for \$1.

CUSTOM • CRAFT

MADE ONLY BY *Custom Craft*



**★ BOAT
PLANS, PATTERNS
FRAME PACS**

• Over 400 Plans-Patterns, Frame Pak Kits, Prams, Kayaks, Racers, Runabouts, Catamarans, Cruisers-In-Outboards (6' to 40') Wood, Plywood and Steel. **Send 35¢ for 120 pg. Plan Catalog.** Catalog plus "Boat Building Handbook"... Send \$1.00.

Buffalo 7, N. Y.

vacation cabin IDEAS



NEW full-color "plans and ideas" catalog shows 20 easy-to-build fir plywood cabins.

Here's the perfect source of ideas for anyone planning to build a vacation cabin. New catalog shows smart, modern designs by leading architects for cabins of every type and size—complete with full-color pictures, floor plans and building tips. Plans call for simple, straight-forward construction with big, easy to use panels of fir plywood, to save you time, money and trouble when you build.

Complete building plans available for all 20 cabins.

SEND 10c for new full-color catalog: (Offer good USA only)

DOUGLAS FIR PLYWOOD ASSOCIATION, Dept. 11, Tacoma, Wash.

FREE THE HISTORY OF THE COMPASS SEND FOR YOUR COPY

DINSMORE
Celebrity
COMPASSES

in Beautiful **GOLD OR SILVER**

A jeweled, precision instrument—designed for modern cars. Full, indirect illumination. Sharp, clear letters. Silver or gold Celebrity models \$6.95, standard models \$5.45, illuminated \$6.45 **APPROVED BY AUTO MAKERS** Fine Quality Compasses for over 31 Years

DINSMORE INSTRUMENT CO. 1804-39 Kelso St., Flint 1, Mich.

Write for Folder

I'LL HEAT THAT COLD ROOM

I am a high volume warm air BOOSTER FAN

Install me in the pipe that runs to your "cold room" and I will keep it warm. Simple to install—fits any pipe 8" or larger. Plugs into 110V socket. Used by furnace men for 20 years. Guaranteed. Directions. Only \$8.85 postpaid.

P. K. PRODUCTS COMPANY 417 Grattan Dept. 6109 Topeka, Kan.



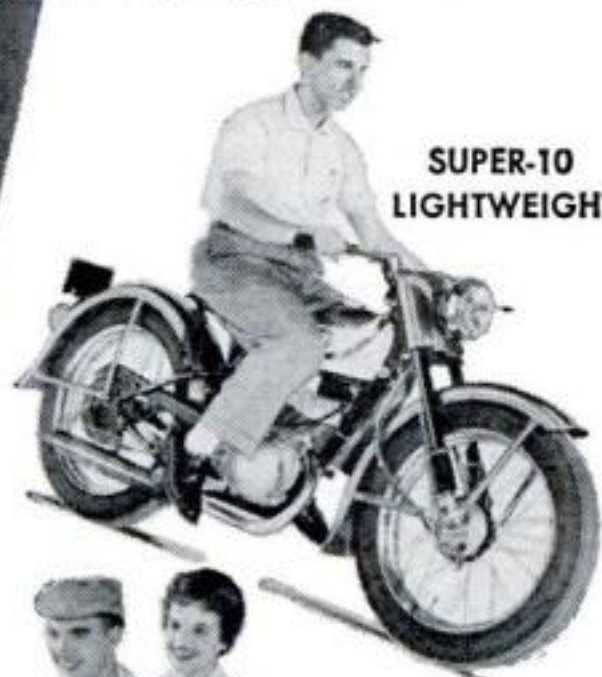
The skilled hand of the German gunsmith is responsible for this .22 caliber, 6-shot repeater automatic with self-ejecting clip. Just 4" long, fits easily into pocket or purse. Ideal for sporting events, stage use. Excellent for training dogs. Not a lethal weapon. Money back guarantee. (Not available to California residents.) Comes for \$6.95 ppd. from

BEST VALUES

Dept. A-6, 403 Market, Newark, N. J.



SPORTSTER



SUPER-10
LIGHTWEIGHT



TOPPER



DUO-GLIDE

Choose
your
**FUN
RIDE**

from Harley-Davidson's "all-round" line for '60

DUO-GLIDE — Harley-Davidson's finest is the luxury cruiser of motorcycles. Smoothest ride on two wheels. Newly styled and engineered for 1960. Available in the FL series or super-powered FLH models.

SPORTSTERS — H Model (shown) for highways or byways — rough going or smooth. Also Sportster CH for "driving" through the rough in "off-the-road" competition.

NEW SUPER-10 LIGHTWEIGHT — Harley-Davidson's newest wheels for the young and young at heart. Ideal for work, school and play. Exciting new styling. Up to 80 miles per gallon.

NEW TOPPER SCOOTER — Tops all others in beauty and performance. Fashioned in gleaming chrome and fiberglass. No shifting

Harley-Davidson

MILWAUKEE 1, WISCONSIN

Perfect Mating of Man and Machine

or clutching with Scootaway drive. Low center of gravity makes for easy handling.

In '60 more than ever before, there's a Harley-Davidson for every purse . . . every purpose. We've added the new *Super-10* Lightweight and *Topper* Scooter. We've made the famous *Duo-Glide* and *Sportster* better than ever. See the all 'round line for '60 at your dealer's now. He'll show you how easy it is to own a Harley-Davidson with his easy-pay plans. Or mail the coupon for free, colorful folders.

HARLEY-DAVIDSON MOTOR CO.

Dept. PS, Milwaukee 1, Wisconsin

Please send me information on

☐ Duo-Glides ☐ Sportsters ☐ Super-10 ☐ Topper

Name.....Age.....

Address.....

Are Corvair Knocks Boosts?



Corvair "knocks" continue. Latest bit of "counterselling" by Chevy's competition that is circulating in Detroit: the gossip that engineers have deliberately detuned the Corvair engine. The idea, the rumors have it, is to keep fast drivers from getting into trouble on curves at excessive speeds. Oversteering, it's claimed, hasn't been licked. (See p. 114.)

These sources claim that the valve float point has been deliberately set at about 48 m.p.h. in second gear, well below the probable potential, for just this reason. Chevy people say only that the unusual degree of counterselling that Corvair has encountered is really a backhanded testimonial.

New tester checks plugs in car. A new lightweight instrument that can check spark plugs in a car, with the engine running, in less than three minutes has just been unveiled by Champion Spark Plug Company.

The device, a special-purpose oscilloscope that weighs less than 3½ pounds, is being sold to dealers, fleet owners, and service stations, and other users at a price of about \$50. It can be hooked up quickly. Only four attachments are necessary: one to each of the battery posts; one to the center tower of either the distributor or the coil (whichever is more accessible), and the fourth to any plug cable. It gives a quick, accurate check on plug condition.

NASCAR studies compact car race. A 250-mile race for smaller U. S. sedans and comparable imported cars is tentatively planned for Speed Weeks at Daytona Beach, Fla., next February. Bill France and associates are studying the possibility of running such an event over the 3.8-mile sports-car road course of the new Daytona International Speedway. This course includes the high-banked track proper and a twisting infield circuit.

Right gas, oil, silence "rumble." General Motors Research Lab reports, after extensive investigation, that 10W-30 oils and fuels with phosphorus additives are most effective in quieting the rapping, low-pitched engine noise engineers call "rumble." These types of fuels and oils minimize combustion-chamber deposits which set off several "flame fronts" in the air-fuel charge—in addition to the normal ignition of the spark plug—when excessive pressure builds up in the chambers.



75_{hp} STARFLITE II with Jetstream drive

Now the wraps are off! We invite you to share the excitement—to see, *try* the sensational new Starflite II—most efficient high performance outboard ever designed!

All the Performance Your Boat Can Use— Starflite II brings to boating entirely new concepts of speed and power, smoothness and reliability. Starflite power makes cruisers scamper like runabouts—Starflite-powered runabouts cruise serenely and economically at speeds other outboards strain to reach!

Outstanding New Features—New automatic

choke, thermostat temperature control, new double-acting shock absorbers, new taper-lock transom brackets—history-making Jetstream Drive with full gearshift. All at no increase in size or weight—all at the lowest cost per horsepower in outboard history!

Preview Showing — 1960 Models — Seven pace-setting new 1960 Evinrudes at your dealer's now...including a fabulous new 40 hp Lark II. New colorful catalog—write: EVINRUDE MOTORS, 4227 N. 27th St., Milwaukee 16, Wisconsin.

JETSTREAM DRIVE BREAKS THE DRAG BARRIER!



Just as jet planes changed shape as greater power boomed them to super-sonic speeds...so has the Starflite II lower unit evolved into a new hydrodynamically designed shape. Jetstream Drive brings to well-designed runabouts the kind of performance formerly limited to lightweight raceabouts and single passenger hulls.

A Division of Outboard Marine Corporation
In Canada: Mfd. by Evinrude Motors, Peterborough

EVINRUDE

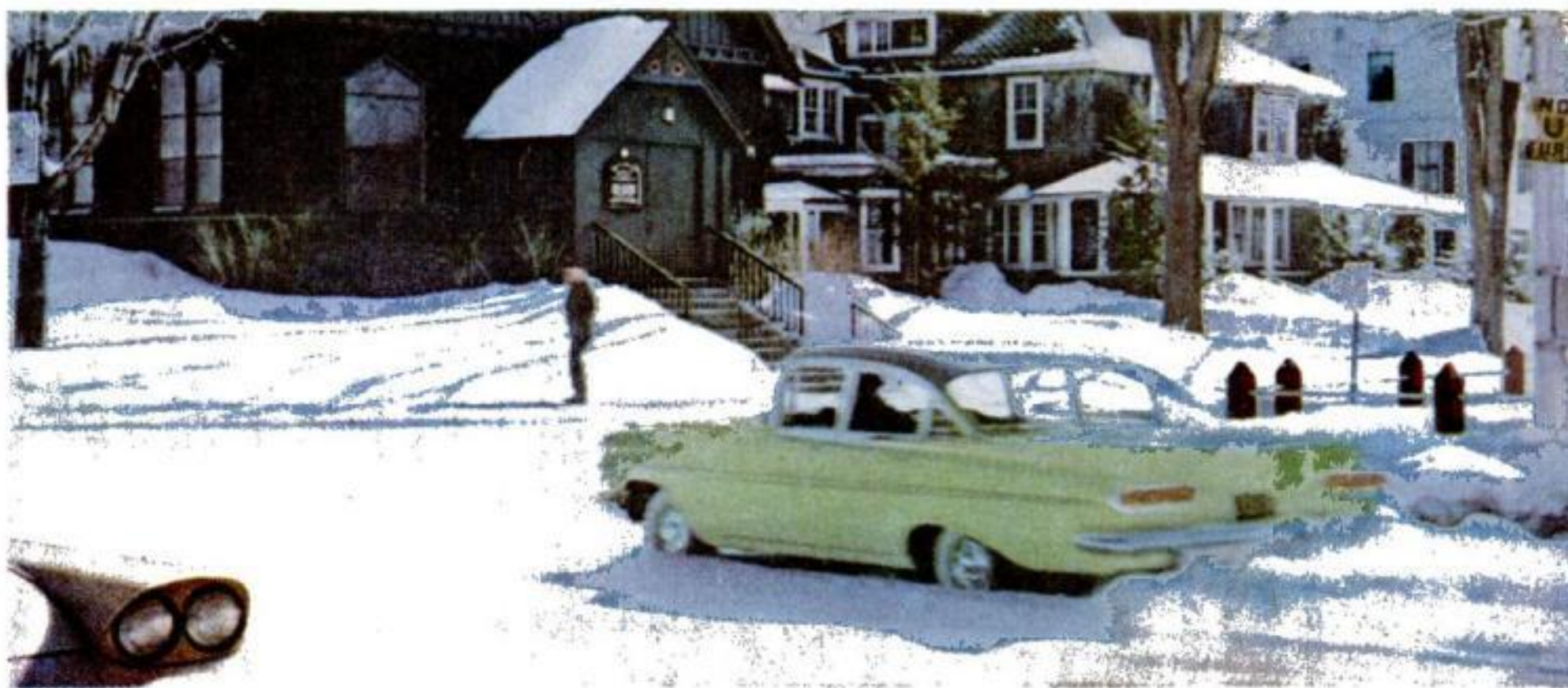
FIRST
IN
OUTBOARDS

GUARANTEED TO GO THRU ICE, MUD

and unmatched for whine-free,



Town & Country tires will GO through backroad



Only Firestone gives you this Guarantee plus Triple-Action Traction

On a country road or a city street, here's the pulling power you need for trouble-free winter driving. PULLING action! NON-SKID action! SELF-CLEANING action! You get winter-proved Triple-Action Traction *plus* Firestone Rubber-X, the longest-wearing rubber ever used in Firestone tires. Firestone Town and Country tires offer you extra miles of service—even over dry pavements. They're available in tubeless or tube-type S/F (Safety-Fortified) nylon or rayon cord, all-black or white sidewalls, in all sizes for American and imported cars. They're guaranteed to go through ice, mud or snow—or your Firestone Dealer or Store refunds your towing charge!

FIRESTONE HAS



Avoid starting worries this winter by installing a new Firestone Dri-Charge Battery in your car.



Save your battery this winter by installing a set of new Firestone, AC or Auto-Lite Spark Plugs.

OR SNOW OR WE PAY THE TOW!

dry-pavement mileage!



drifts or city snow



EVERYTHING YOU NEED TO WINTERIZE YOUR CAR



Protect your radiator with Firestone Frigite, the permanent antifreeze, or Firestone Frigitol.

Good brakes are vital to safe driving. Firestone Matched Set Brake Lining assures you of safe stopping.

Before adding antifreeze, install new Firestone Radiator Hose and Firestone Fan Belt.

Firestone Speedy Cooling System Flush and a Firestone Oil Filter help protect engine.

Firestone

TOWN & COUNTRY TIRES

Copyright 1959, The Firestone Tire & Rubber Company

Get satisfying flavor...So friendly to your taste!

NO FLAT "FILTERED-OUT" FLAVOR!

NO DRY "SMOKED-OUT" TASTE!



© A. T. Co.

See how Pall Mall's famous length of fine tobacco travels and gentles the smoke—makes it mild—but does not filter out that satisfying flavor!

HERE'S WHY SMOKE "TRAVELED" THROUGH FINE TOBACCO TASTES BEST



1 You get Pall Mall's famous length of the finest tobaccos money can buy.



2 Pall Mall's famous length travels and gentles the smoke naturally...

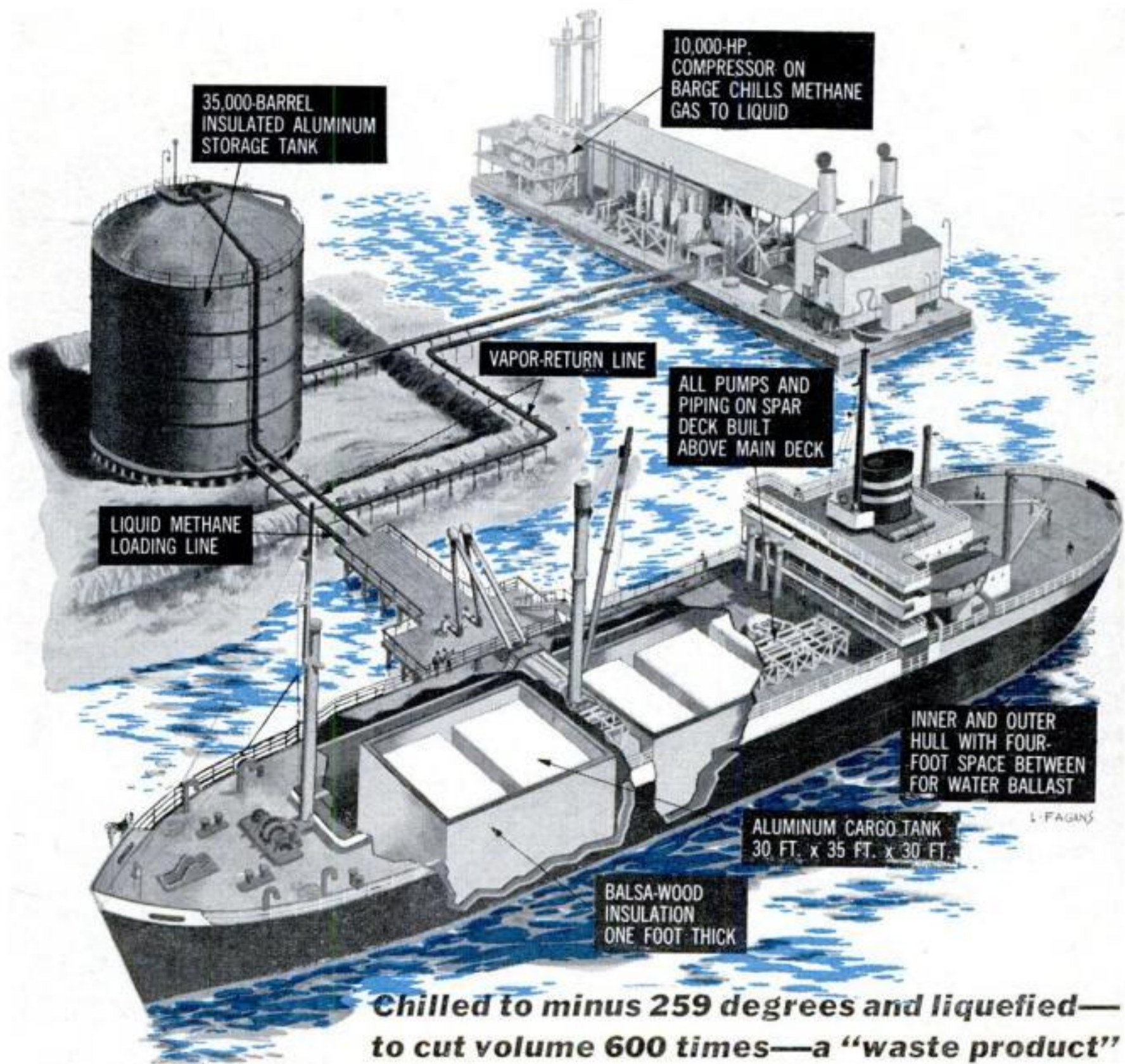


3 Travels it over, under, around and through Pall Mall's fine tobaccos!

Outstanding... and they are Mild!

Product of The American Tobacco Company — "Tobacco is our middle name"

Strange New Ship Hauls Cooking Gas



Chilled to minus 259 degrees and liquefied—to cut volume 600 times—a “waste product” becomes a precious cargo for supertankers

By David X. Manners

A NEW kind of ship, loaded with a cargo unlike any ever transported before, slipped quietly out of a Louisiana port this year. Its crew of 30, plus a team of six design and test engineers, were off to prove a point. Liquefied methane, they believed, is not the perilous, highly explosive cargo it's popu-

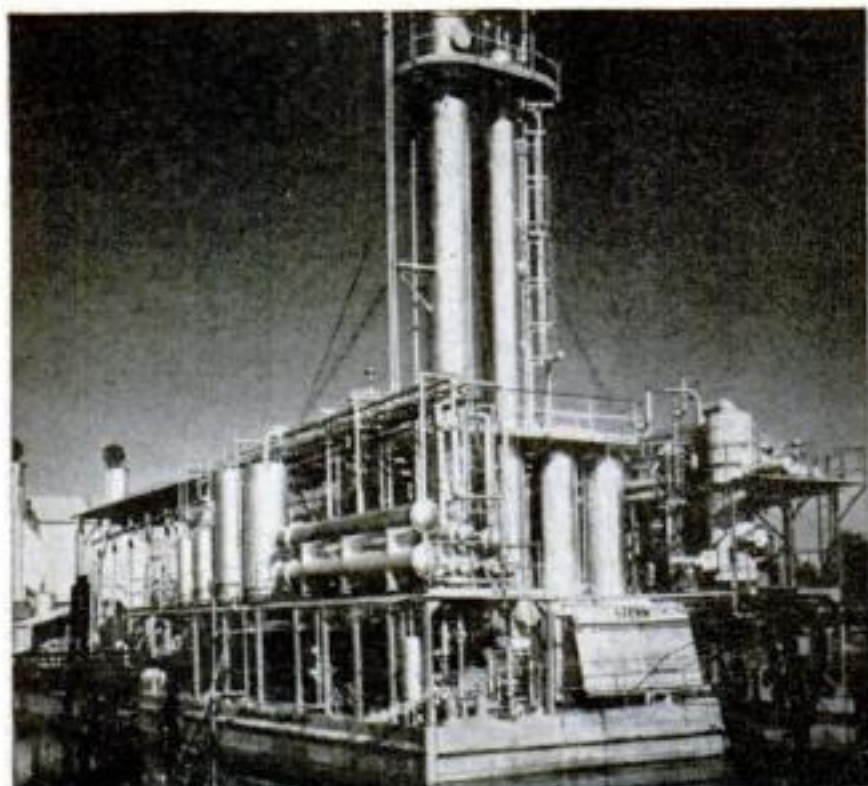
larly supposed to be—no harder to handle than regular gasoline. If the voyage proved successful it would revolutionize the oil and gas industry.

The rich oil fields of Venezuela, Algeria and the Near East prolifically produce, besides oil, the natural gas that fuels kitchen stoves. In those places there's no use for it. Yet countries such as England, Germany and Japan are

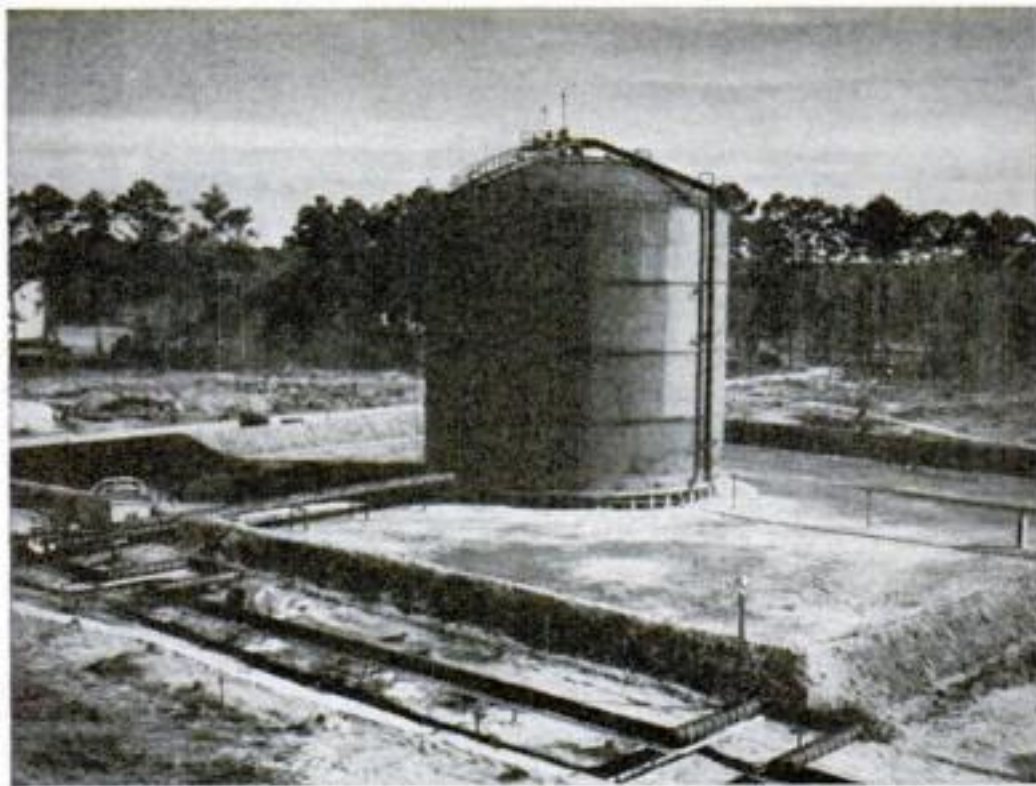
CONTINUED

77

For the coldest cargo ever: a giant chiller-on-a-barge



REFRIGERATION PLANT, built on barge so it can be floated from well to well, cools methane gas to liquid (at minus 259 degrees) in six stages.



EARTHEN DIKE would stop spread of methane, which can explode with disastrous effect, in case tank storing the liquid should leak.

starved for gas. Pipeline connections are out, so this gas, by the millions of dollars' worth, has been wasted—burned off at the wells.

If methane were converted to a liquid, it would be reduced to 1/600 of its volume. It could then be hauled in ocean-going tankers, just like oil or gasoline. That's fine, except . . .

Compressing methane into a liquid—the way other gas fuels like propane and butane are handled—looked hopeless. It takes a pressure of 9,000 pounds per square inch. Chilling methane until it condensed to liquid seemed no more promising. The temperature of liquid methane (unpressurized) is 259 degrees F. below zero!

Foray into the unknown. Still, it might be done. The impetus came first, oddly enough, from the Union Stock Yard and Transit Co. of Chicago (which was looking for a cheap way to get gas fuel from wells it owned in the Southwest). Continental Oil joined in, forming Constock International Methane, Ltd. Led by Continental's John A. Murphy, the new organization bet on refrigeration.

What kind of a tank could hold a liquid like that? What metal wouldn't give way under the effects of the sub-zero temperature, the pounding of rough seas? And how could the liquefied gas be refrigerated on the ship?

If 259 below is the point at which

methane becomes liquid, it's also the point at which it again becomes a highly combustible gas. What could be done with that gas? It couldn't be kept in the tanks. They'd blow up from the pressure.

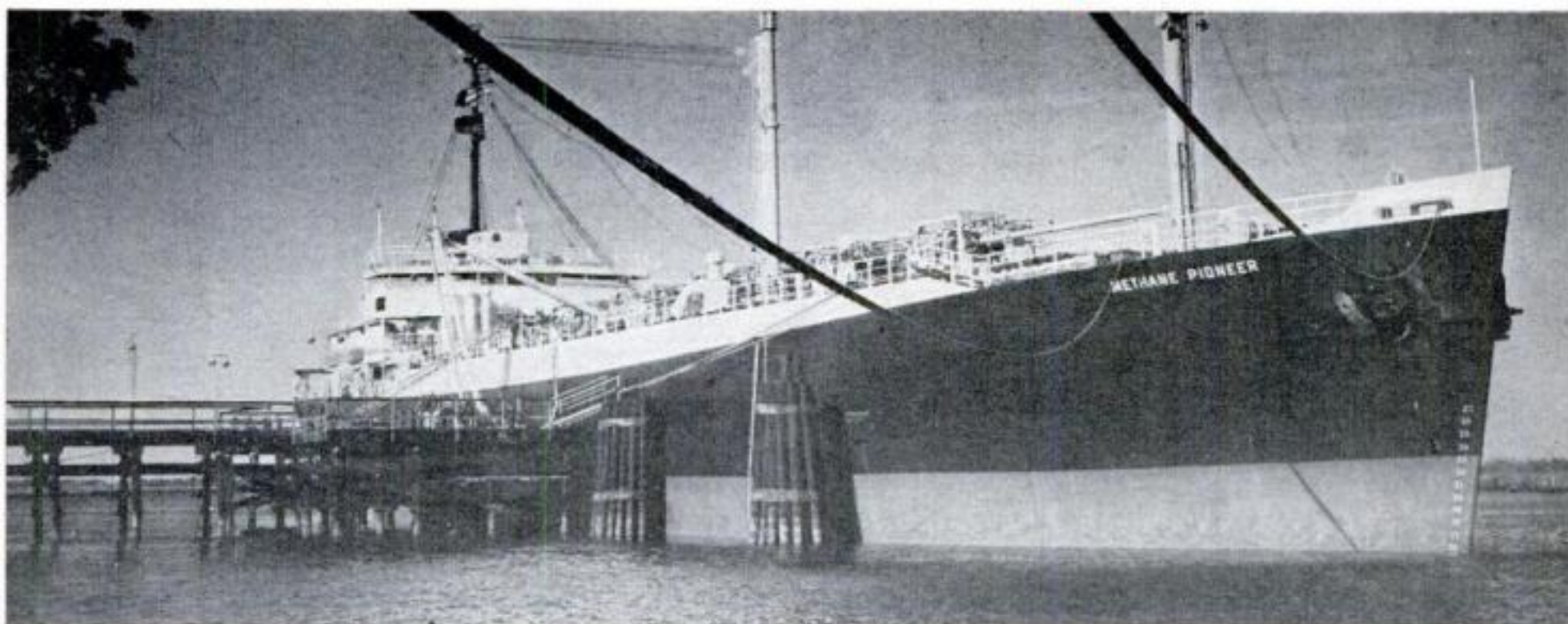
Engineers had studied classic methane accidents such as the 1944 disaster in Cleveland, when methane spilled into the streets and sewer system, exploded, burned over 50 blocks and killed 135 people. They were confident they now had all the answers. The one way to be sure was to build a test plant and a test ship and put their theories into practice.

Four years ago, pilot operations began at Lake Charles, La. A \$3,000,000 refrigeration plant was built on a barge. It was made mobile so it could be moved to service different wells. For another \$5,000,000, a cargo ship was converted into a refrigerator tanker for carrying the erstwhile gas.

Ballasting against bob. The tanker posed many problems. Because methane is only half as heavy as water, special ballast had to be provided so the ship wouldn't bob on the waves like a cork. It was contrived by building two separate steel hulls, one inside the other, and four feet apart with water between as ballast.

A new kind of insulation had to be found. There was the possibility that methane spilled on the water might ignite and envelop the ship in fire. John Murphy found the answer in the jungles

and balsa-lined tanks in a double-hull ship



FIRST OF FLEET, the Methane Pioneer carries five aluminum tanks, which are heavily insulated with balsa wood but are not refrigerated. It de-

livers cargo before more than a small fraction boils away. Gas that does boil off is vented through tall stacks into the atmosphere.

of Ecuador—foot-thick balsa wood. Balsa will burn, but in big chunks it won't do more than char even if you hold a blowtorch on it. Oxygen can't get inside the wood to support combustion. As an insulator, balsa is better than fair.

Five tanks, to hold 35,000 barrels of methane, were made of half-inch aluminum plate (aluminum doesn't become brittle at extreme cold). But just in case the metal did rupture, the balsa insulation around it was leakproofed with special joints and a secretly formulated covering. The very nature of liquid methane helps prevent leaking. If the liquid penetrates the balsa, it warms, turns into gas, and the gas drives further liquid back out.

To waste least space, the tanks were built square. They were not fastened down, because they would expand and contract three inches with temperature changes. They were merely keyed into the balsa with metal projections, and the balsa reinforced at these points.

Keeping oxygen away. Methane can't burn unless it has oxygen. To keep air from around the tanks, they were surrounded with incombustible nitrogen gas. The tanks, too, were precooled, before filling, with liquid nitrogen. The nitrogen displaced all air from the tanks so a combustible mixture of methane and air would never be present at any time.

The tanks didn't have to be mechani-

cally refrigerated, since the liquid methane kept itself cold by boiling gently on the surface. The heat for continuous boiling was taken out of the liquid, thereby keeping it cold.

The boiled-off gas was carried out of a vent pipe rising high above the ship. This loss came to only a fraction of a percent per day. But theoretically, if the ship were delayed enough in transit, it could lose its entire load.

Last January 28th the newly christened Methane Pioneer was loaded and ready to sail. It pulled cautiously away from the dock. Instruments and gauges kept constant check on temperatures, pressures and anything else that might be the first clue to impending disaster. An infrared analyzer continuously monitored the gas composition in the insulation space to detect leaking methane. If it did, it would sound an alarm. A series of thermocouples attached to the sides and bottom of the ship's inner steel hull were ready to warn of a sudden temperature drop that might crack the metal.

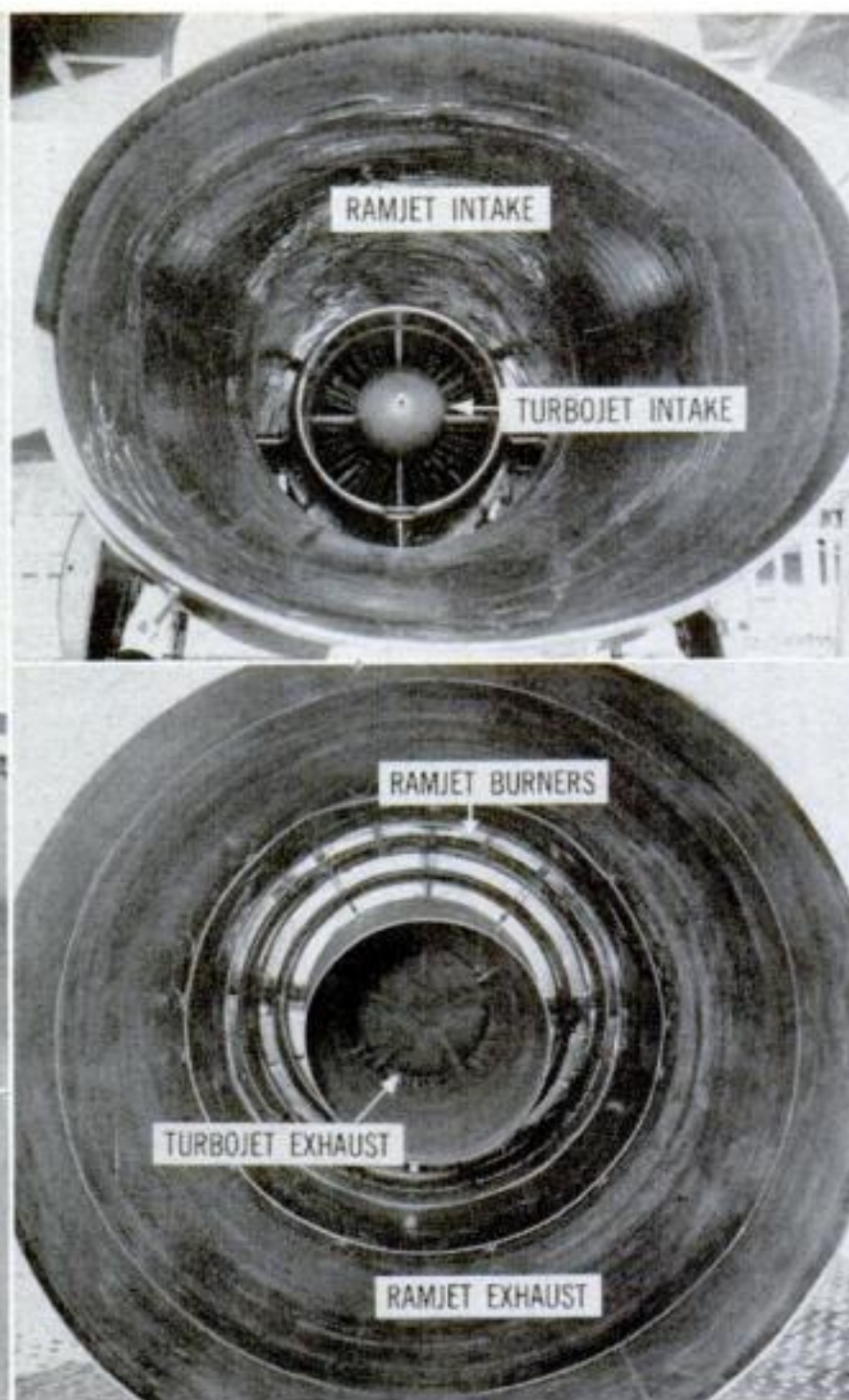
Trial by lightning. The Pioneer started slowly. It speeded up to 11½ knots. Then it ran into rough weather and the real test was at hand. Would the welds hold? (Every seam in the five tanks had been X-rayed for faults.) Could lightning strike a fire? (Steel-hulled ships, nearly perfectly grounded, are usually immune to

[\[Continued on page 252\]](#)

PS Picture News



JET WITHIN A JET. The dual engine of the French Nord Griffon II has a turbojet engine in the center. Built around it is a ramjet engine (photos at right). The "flying stovepipe" ramjet takes over at high altitude and superson-



ic speeds. The pilot's cockpit is mounted above the gaping common air intake (upper left) and has its own delta tab wings. A research aircraft, the Griffon recently flew more than twice the speed of sound on its ramjet engine.



ELECTRIC HEATING. The "fireplace" in this British home is a movable, plug-in panel. The board, of fiberglass saturated with graphite, was developed from a method of heating jet-plane components.



STRADDLE STACKER. This new "van carrier" drives over trailers or railroad flatcars to pick up or load big cargo containers. A built-in hoist enables it to stack one on top of the other.



In a New York hospital, a narcotics addict goes through misery as he tries to "kick the habit."

What every young man should know:

The Tragic Truth About Taking Dope

**By
Herbert Yahraes**



A PERSON who has become addicted to narcotics is one of the most miserable of all human beings.

He brings his family shame and anguish. He finds it increasingly difficult to get any real joy out of life. He no longer gets even a temporary kick from dope-taking. He is likely to wind up among underworld characters—or in prison. He suffers, really suffers, physically.

Some physiological processes and personality problems involved in the tragedy of drug addiction are just now beginning

CONTINUED

When he can't get "fixed," the drug addict is in for days

to be understood. Here is a summary of what the doctors know today:

What happens at the start of the habit?



When a dope-taker sticks the needle under his skin for the first time, he gets much the same effect from morphine or heroin as from a cocktail on an empty stomach. His troubles seem pushed back. The world looks good.

In half an hour he grows drowsy. An electroencephalograph would show a brain-wave pattern characteristic of the first stages of sleep. He wakes up suddenly, drifts away again. Drug addicts say he is "on the nod."

Now occur those opium dreams. They aren't wildly beautiful, however; they are made of the same stuff as his day-dreams. Narcotics simply help the dope-taker to indulge in his usual fantasies. These effects are caused by deep-seated depressant actions on the brain and nervous system.

He also breathes a little slower. His temperature and blood pressure fall a little; his eyelids slightly droop; and he blinks less often—all the result of minor depressant actions on his autonomic, or involuntary, nerves. Somewhere along the line, since this is his first experience with narcotics, he may get sick to his stomach.

The effects wear off gradually, in three or four hours.

Is it different once a man is "hooked"?

The veteran dope-taker, seeking a swifter kick than that supplied by an under-the-skin injection, jabs the needle into a vein. In seconds the blood vessels in his skin dilate, his face flushes, and his nose may itch. Soon he has a feeling in his abdomen that addicts call a thrill. They say it's a little like a sexual orgasm.

The thrill passes in a few minutes and the symptoms become the same as with a subcutaneous dose. The addict says at this stage he is "fixed"—meaning that he has satisfied his craving for a while and is feeling no pain.

A person under the influence of heroin, morphine or a similar drug appears quite normal. Since he is often an anxiety-ridden person to start with, he may, in fact, seem more nearly normal with the drug than without it. As long as he hasn't taken enough to make him sick, most people aren't likely to notice the signs that he has taken any.

Can an addict perform skilled work?

Experiments at the federal drug-addiction hospital in Lexington, Ky., have shown that even persons "on the nod" will

.....

This article is based on information obtained from interviews with—or scientific publications written by—the following authorities:

Kenneth W. Chapman, M.D., assistant director, Clinical Center of the National Institutes of Health; and formerly director of the

United States Public Health Service Hospital (for drug addicts), Lexington, Ky.

Harris Isbell, M.D., director, National Institute of Mental Health Addiction Research Center, Lexington.

James V. Lowry, M.D., formerly medical

of utter misery, twitching, vomiting, diarrhea—and terror

quickly rouse themselves when asked to do something and will do it with their customary skill. They may do it a little less speedily than usual, and on psychological tests they score a little lower than usual. But, states a report to the *American Journal of Medicine*: "If a sufficient supply of the drug is available, the overt behavior of the addict is not unusual and he can carry on a highly skilled technical occupation in a fairly satisfactory manner."

"These drugs," one authority emphasizes, "do *not* impair a person's reasoning ability."

So what's so bad about taking narcotics?

A great deal. One trouble is *tolerance*. Sooner or later the dope-taker can't get "fixed" unless he increases the dose.

For the non-addict the usual dose of morphine is a quarter of a grain—about one-twentieth the size of an aspirin tablet. Its effects last a few hours. To recapture them, people taking a narcotic regularly have to double the dose in a matter of days. Soon most of them have to increase it again, and then again, and again. There is a case on record of an addict who in 16 hours took 78 grains.

Even in big doses, short of the poisoning level, the drug apparently does no direct physical damage. It allays hunger, however, so the addict may become malnourished. And, since it relieves discomfort and masks pain, he may become seriously sick without knowing it.

Further, he has to spend more and more time looking for the drug and less and less time working. Somewhere along the line, then, he may be edged into criminal activities because they seem the only answer to his financial problem.

(Do narcotics make people criminal? No. But many criminals do eventually take dope, and many dope-takers do eventually become thieves, racketeers or confidence men to support their habit.)

As time goes on, the addict is likely not only to need more of the drug but to need the drug more. This dependence is partly emotional. He uses the drug to dissolve his problems, and the oftener he turns to it for this relief, the stronger its hold on him.

Is drug addiction believed to be mental or physical?

It used to be thought that the whole process of dependence was "in the head." But researchers have piled up proof that the drug definitely changes body chemistry. For example, certain reflex actions in the legs of animals are stronger than usual when the animal has been given morphine.

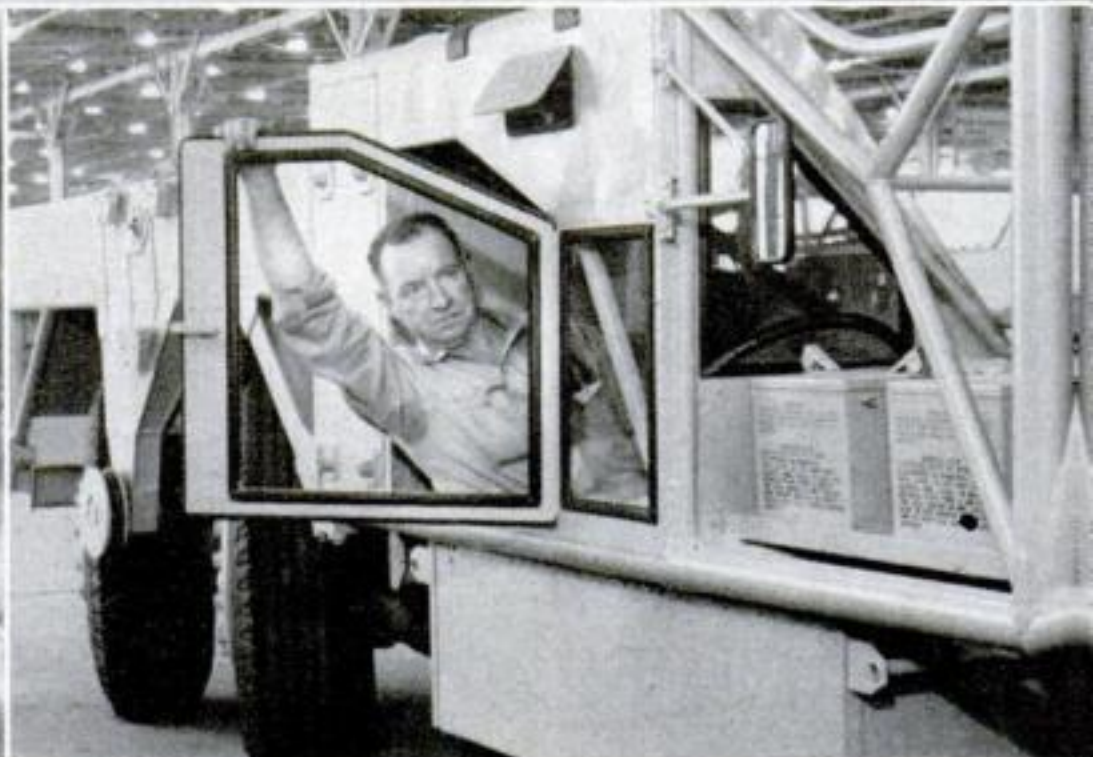
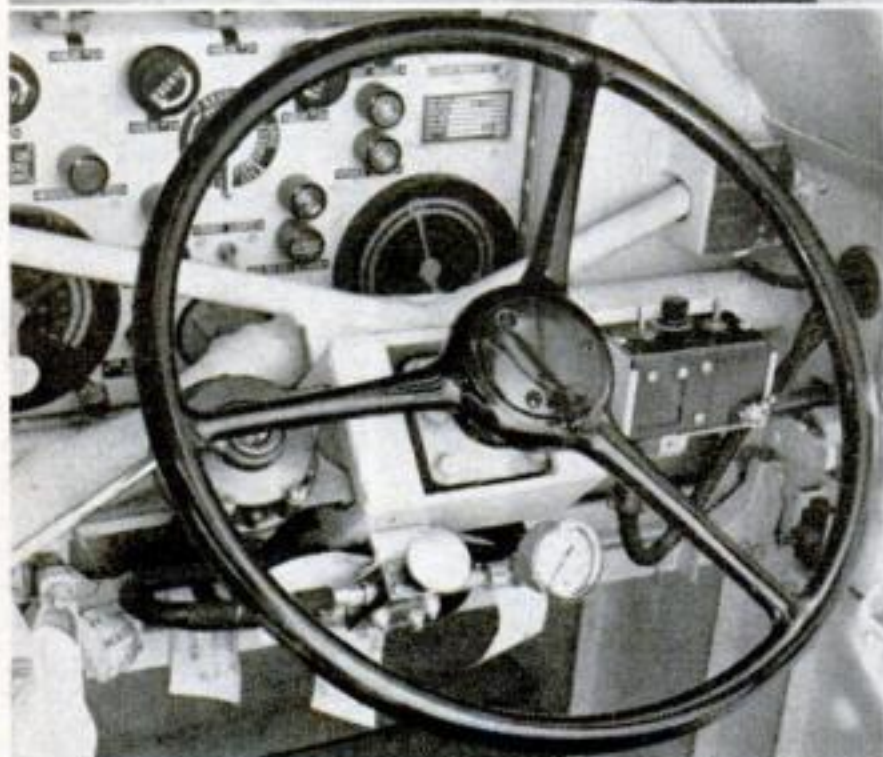
[Continued on page 256]

officer in charge of the Public Health Service Hospital, Lexington.

Lawrence Kolb, M.D., formerly director of the hospital at Lexington and formerly in charge of the Division of Mental Hygiene, now the National Institute of Mental Health.

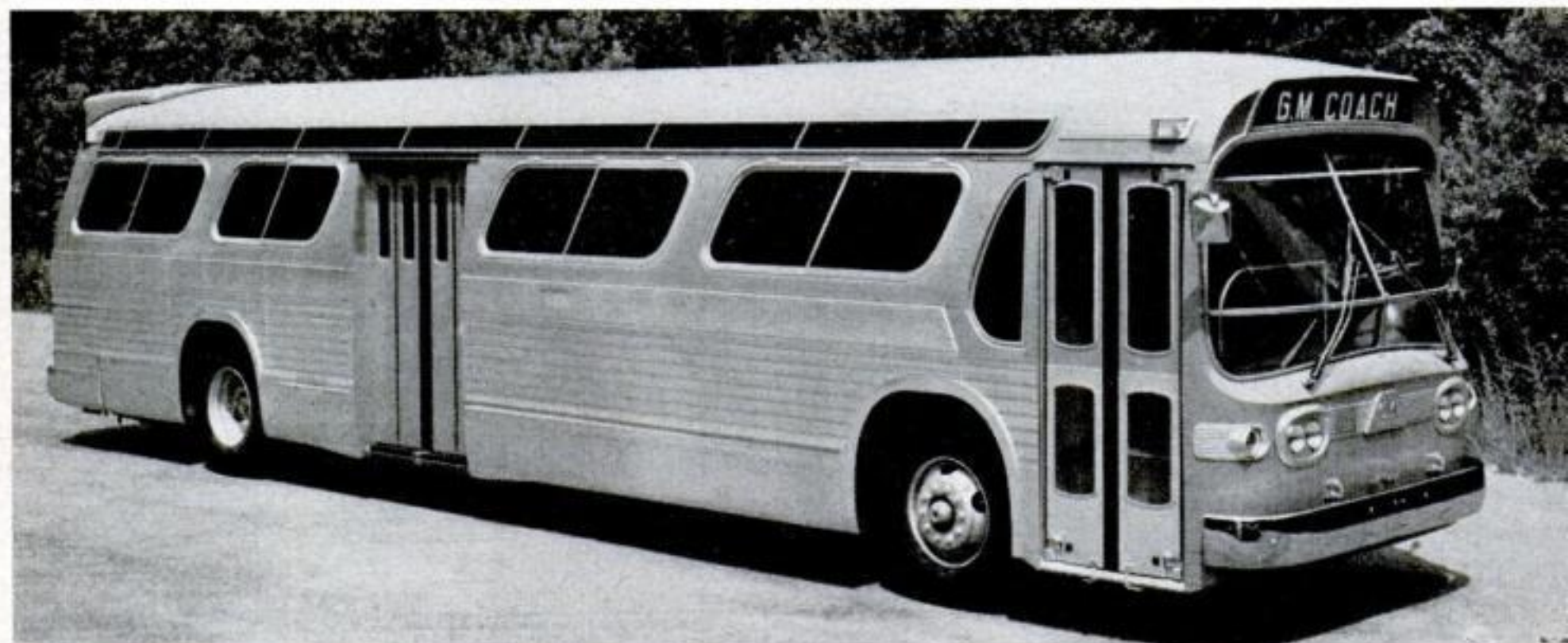
Walter M. White, M.D., of the hospital at Lexington.

Abraham Wikler, M.D., chief, Neuropsychiatric Section, National Institute of Mental Health Addiction Research Center in Lexington.



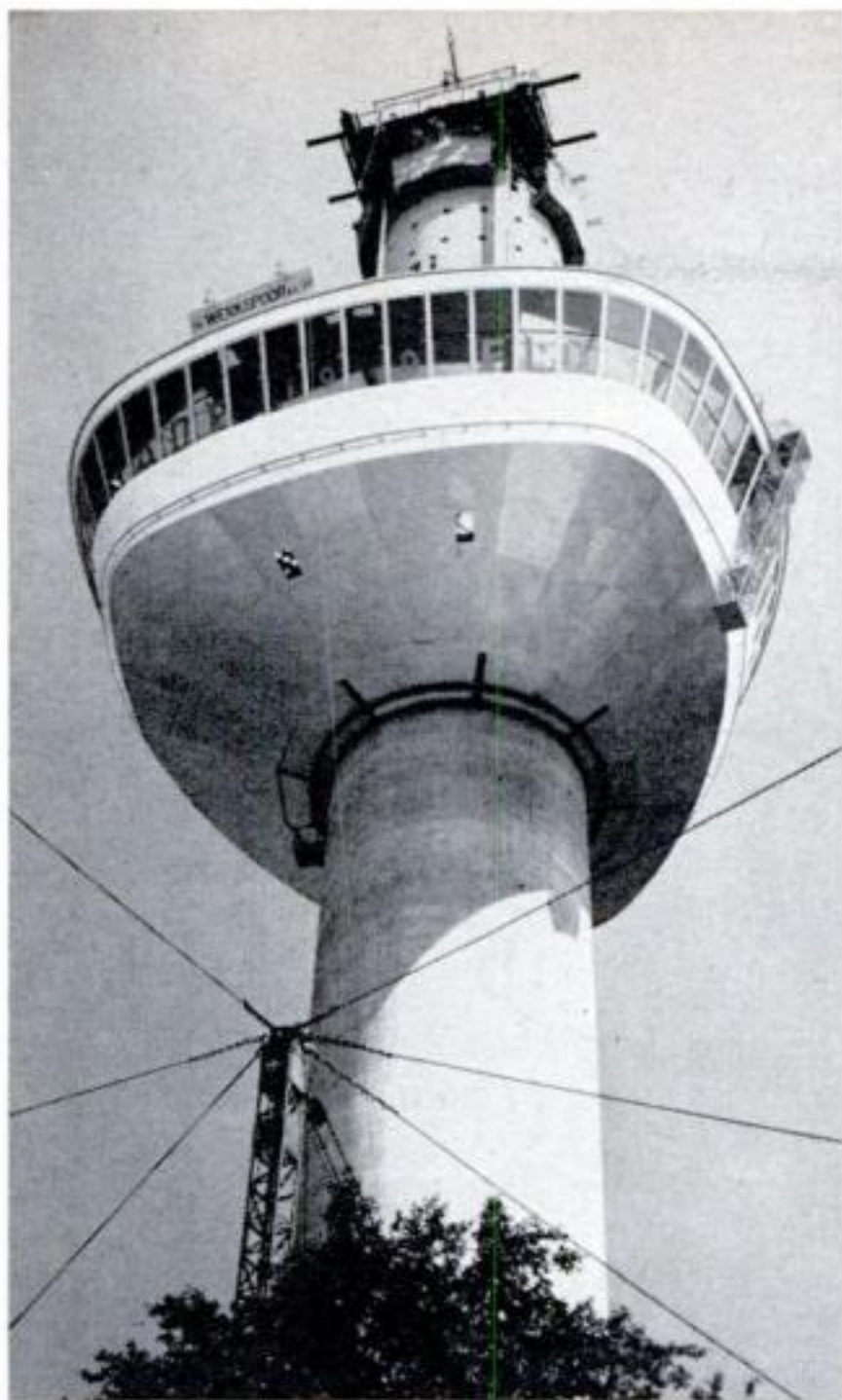
BACK-SEAT DRIVERS. Good-year's new 80-foot Atlas carrier (top) requires two co-pilots. They sit, one on each side, in low-slung cabs (above, right) just ahead of the big four-wheel rear trucks. Like the tillerman at the back of a hook-

and-ladder, each has his own steering wheel (left) to control the rear wheels when turning corners. Each can see only on his own side, keeps in touch with his partner and the driver in the cab up front through an intercom system.

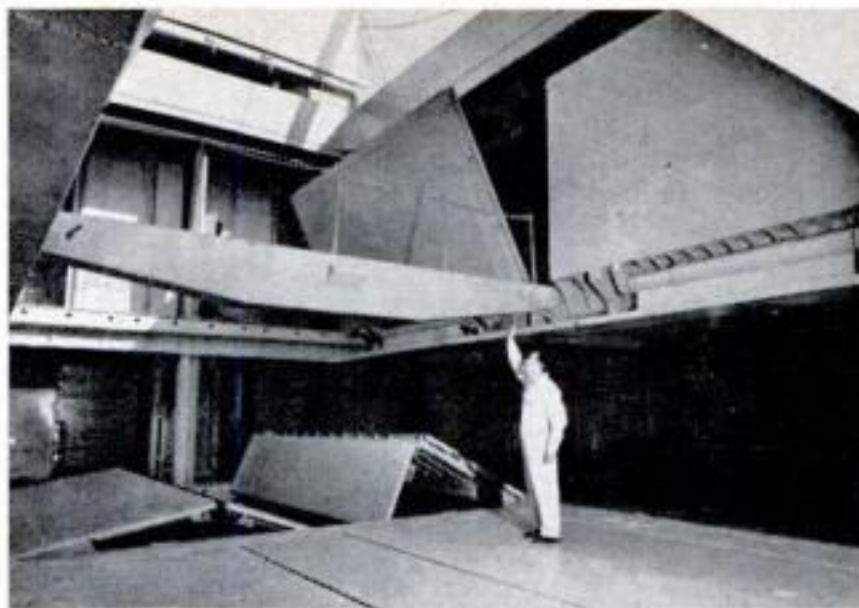


STYLISH BUS. Here's a new bus for city streets that's streamlined to look like a cross-country cruiser. Slanted win-

dows slide horizontally to open, and high transoms let standees watch for stops without bending. A 25½-square-foot wind-



CROW'S-NEST. This restaurant, built like a lookout on the mast of a ship, soars 320 feet into the sky at Rotterdam, Holland. It will open next year and give patrons an unusual view of one of Europe's leading harbors while dining.



SELF-RAISERS. Hydraulic screw-jacks in the hatch-hinges above lift the covers in 30 to 60 seconds on a new Swedish ship. Lifting mechanisms occupy no cargo space, don't get in the way.



DRIVING IN THE DARK. Infrared binoculars convert heat into light electronically to let soldiers see and drive during blackest blackouts. They respond to normal heat which all objects—even inanimate ones—always give off.



shield (above) gives the driver a full view of the street ahead and to the sides. A new V-6 diesel engine powers the air-

conditioned bus. GM is making it in four models with capacities of 45 to 53 passengers. Better mileage is expected.

Firemen Burn a School—to Save Children's Lives

Los Angeles firemen set 60 blazes in an outmoded schoolhouse to learn how to protect children in other buildings like it

By Wesley S. Griswold

YOUR town probably has a school like this: 40-odd years old, two or three stories high, but solid and pleasant, its spacious rooms essential for ever-multiplying classes. There are thousands like it across the U.S.

Fire experts call it the most hazardous type of school building.

The tragedy latent in its wood-joisted floors and upper-story classrooms burst upon the nation last December. Within a few minutes flame and smoke swept Our Lady of the Angels School in Chicago. Ninety children and three teachers died; 77 others were badly hurt.

Spurred by this disaster, the Los Angeles Fire Department has now shown how to make such old schoolhouses safe. The fire fighters found out by becoming fire bugs. Methodically they set fire 60 sepa-

rate times to Robert Louis Stevenson Junior High School (abandoned because of weakened foundations).

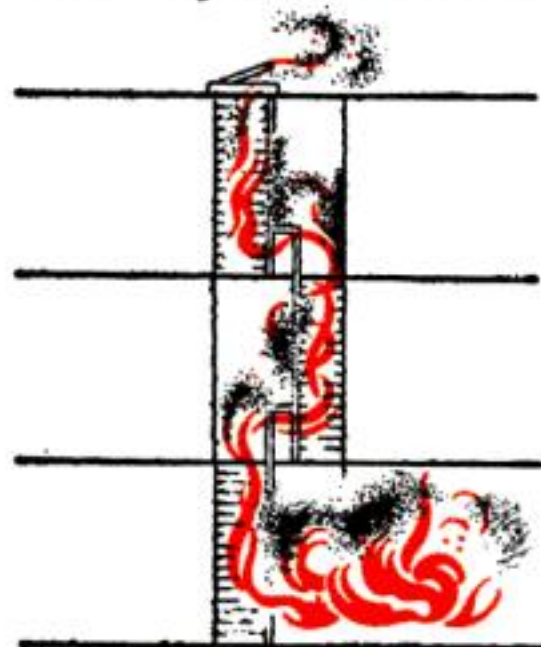
The test blazes proved that there is only one *sure* way to protect the children:

Equip every aging, multistory schoolhouse with a complete, automatic sprinkler system. Rig it so that the instant a sprinkler head goes into action, it will start alarm bells ringing. Then the vital decision on whether or not to evacuate the schoolhouse won't be left to human judgment.

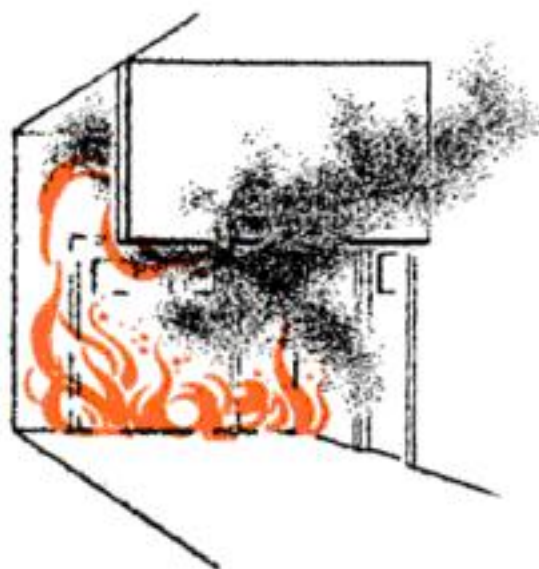
In the dreadful Chicago fire, a fast-moving blaze was given 17 fateful minutes to spread between the time two children reported smoke in the basement and the time that the school alarm was sounded and the firemen summoned.

The Los Angeles test fires revealed one other dependable safeguard: Install an automatic fire-detection system, set to

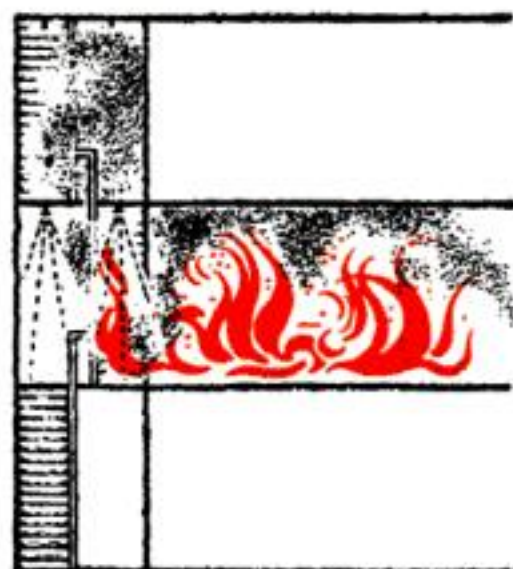
Halfway measures like these won't save lives



VENTED STAIRWAYS proved disappointing. Experiments showed that they were little help in keeping smoke and heat to tolerable levels inside rooms.



DRAFT CURTAINS—partitions erected across corridors—retarded the spread of intense heat, but didn't stop smoke. Smoke is the dangerous killer.



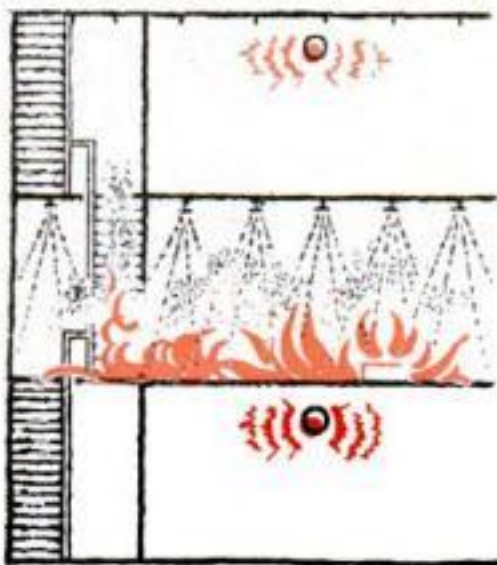
PARTIAL SPRINKLER system, like draft curtains, failed to provide full protection. It kept heat under control, but had no appreciable effect on deadly smoke.



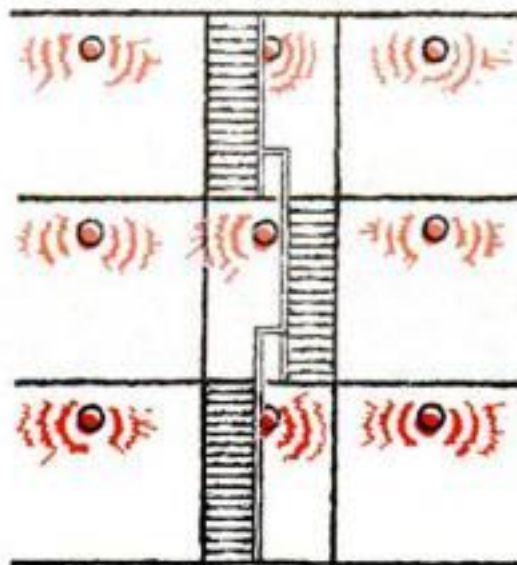
HUNTING FOR EMBERS after putting out first schoolroom fire of Los Angeles test series, fire-

men check results. In later tests, stacks of pallets replaced wood chunks for "standard fire."

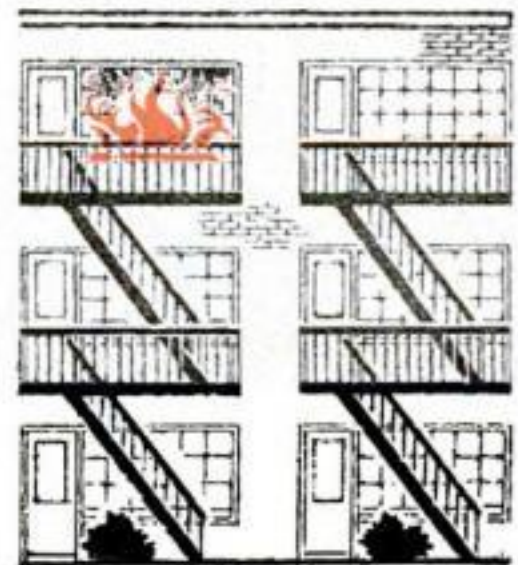
There's one sure safeguard—but it's expensive



COMPLETE SPRINKLER system guarantees safety, tests indicate. It would control both smoke and heat, simultaneously sound alarm. Cost: \$10,000-plus.



ALTERNATE METHOD requires both automatic alarms, sensitive to heat and smoke, and direct exit to outdoors from every classroom. Only both could get children out of burning school fast enough to escape alive. In Los Angeles tests, unchecked basement fire made some classrooms death chambers within *two minutes*.



CONTINUED

1958 Chicago tragedy—93 dead, 77 hurt—spurred program



PREPARING FOR A BLAZE in the Stevenson School, technicians check wiring of thermocouples (which record temperature rise) and get ready to ignite a weighed amount of dry wood.



INSTRUMENTATION ROOM in the outmoded school registered temperatures on all three floors during test fires. One big panel (above) kept tabs on a new smoke-density alarm system.



THICK BLACK CLOUD pours from classroom during one test. It shows graphically why most victims are killed by smoke rather than heat—and why safeguards must control both dangers.

sound the alarm when it senses smoke or a sudden, dangerous rise in temperature. *But*—for full protection, every classroom must have an outside exit.

Every other conceivable protection was tried out—separately and in combination—during 2½ months of starting and dousing blazes. Among them:

- Automatic vents, regulated by heat and smoke.
- Fully enclosed stairways.
- A partial sprinkler system.
- Automatic draft curtains in stairwells and corridors.
- Smoke barriers in corridors.

For saving lives, *they were all found to be practically useless.*

That is the preliminary report of Deputy Chief Raymond M. Hill, Fire Marshal of Los Angeles, who was in charge of the unique experiments.

How to burn a school. The 34-year-old Stevenson Junior High, which was made a fiery sacrifice to the cause of children's safety, was an ideal candidate for burning.

The three-story, 30-room structure had a brick-and-concrete exterior. Its corridors and stairways were of concrete, lined with hollow clay tile. Classroom floors, partitions and roof were wood.

Since it was due to be razed, the Los Angeles Board of Education offered it for use in fire-spread and fire-fighting tests. The Ford Foundation provided \$25,000 to help finance the experiments. Interested business firms contributed \$75,000 in services and materials.

Deputy Chief Hill and his picked crew of fire-spread investigators set aside one wing of the school for their work. They sealed it off by building partitions in the corridors. They then had, in effect, a three-story schoolhouse 65 by 95 feet, with two open stairways, one at each end; one outside fire escape; and a small basement.

This laboratory was studded with devices for measuring temperatures, smoke densities, oxygen and carbon monoxide. Two firemen were stationed on each floor during every test fire. They didn't wear masks. They were there to determine the moment when smoke became too thick, heat too intense, for a child to endure. Their reactions were compared with the instrument readings after each fire.

to measure dangers of old schoolhouses and find cures



BASEMENT FIRE in Chicago school before Christmas last year sent heavy smoke and intense heat racing up stairway to fill second-story classrooms and block the children's escape.

For the 60 blazes, Hill and his team established a "standard fire": 1,400 pounds of wooden pallets, heaped in two or three piles and set afire by two match-lighted cotton-and-gauze igniters. This burned neither too fast nor too slowly. It reached peak intensity in 12 to 15 minutes. At its height, the fire produced 560,000 BTUs of heat per minute—a bit less than the searing blast from one fully blazing classroom.

Five fires were allowed to burn to peak intensity. This provided a baseline against which control measures were compared.

The results were hair-raising.

Holocaust in minutes. Some of these unrestricted fires were set in the basement, at the foot of a stairway. Their smoke routed firemen from the ground floor within two to three minutes. It drove other firemen choking and weeping from the second floor in about four minutes, and from the third floor within six minutes.

Smoke is usually the principal killer. Then comes heat.

The experimenters had decided that a temperature of 150 degrees five feet above the floor was the limit that a schoolchild could tolerate. (After a few light roastings, the firemen guinea pigs argued for a 135-degree limit.)



CHARRED CORRIDOR testifies to searing temperature generated by tragic blaze. Wood-joisted floors burned through. Delay in sounding alarm—17 minutes—was a big factor in disaster.

Heat from uncurbed basement fires made the first floor of the Stevenson school unbearable within five to seven minutes. The second and third floors got too hot in eight to 11 minutes.

Within 15 minutes, temperatures on the first floor ranged up to 600 degrees, on the second to 300 degrees, on the

[\[Continued on page 238\]](#)



AN EXPENSIVE LESSON to city of San Francisco was the \$1,000,000 fire that swept the Jefferson School there last Memorial Day weekend. The aging school had no automatic sprinklers.

How an Auto Horn Works

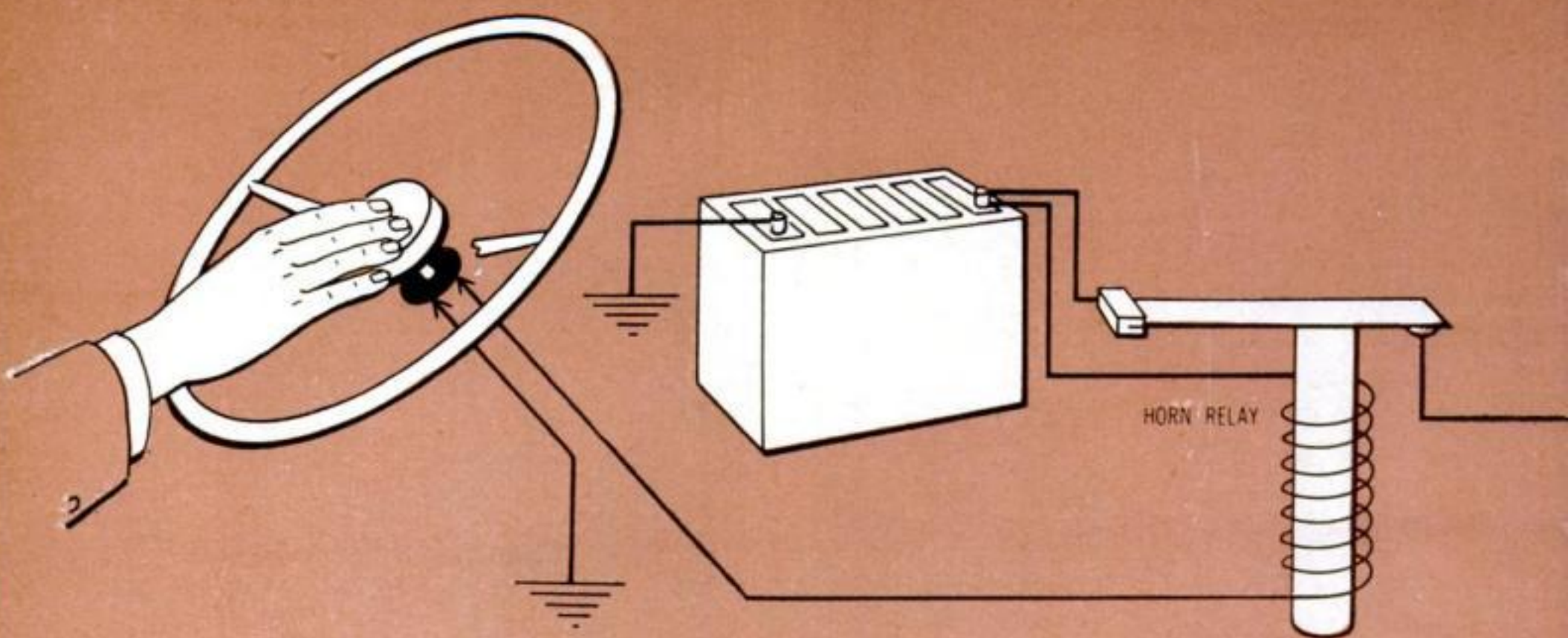
AN AUTO horn is a musical instrument, sort of, that's played electrically. American cars usually have two: one tuned to E flat (311 cycles per second) and the other to G (392 c.p.s.). When you press the button, out comes the most common interval in music—the major third.

No rules forced the horn makers to agree on the notes. They've tried many. But experience since 1933, when the "sea shell" horn came out, indicates that these frequencies are the best compromise. A variation of only $2\frac{1}{2}$ c.p.s. is allowed. Below 311, a horn vibrates its mounting bracket enough to loosen it.

Above 392, the vanadium-steel diaphragm would have to be so thin that accurate manufacture would be difficult.

Horn manufacturers are still looking for a better way to produce sound. If cars had compressed air they'd probably be fitted, like trucks and diesel trains, with air horns. This type is louder without offending human ears. For penetration, say experts, frequency and distinctiveness count more than loudness.

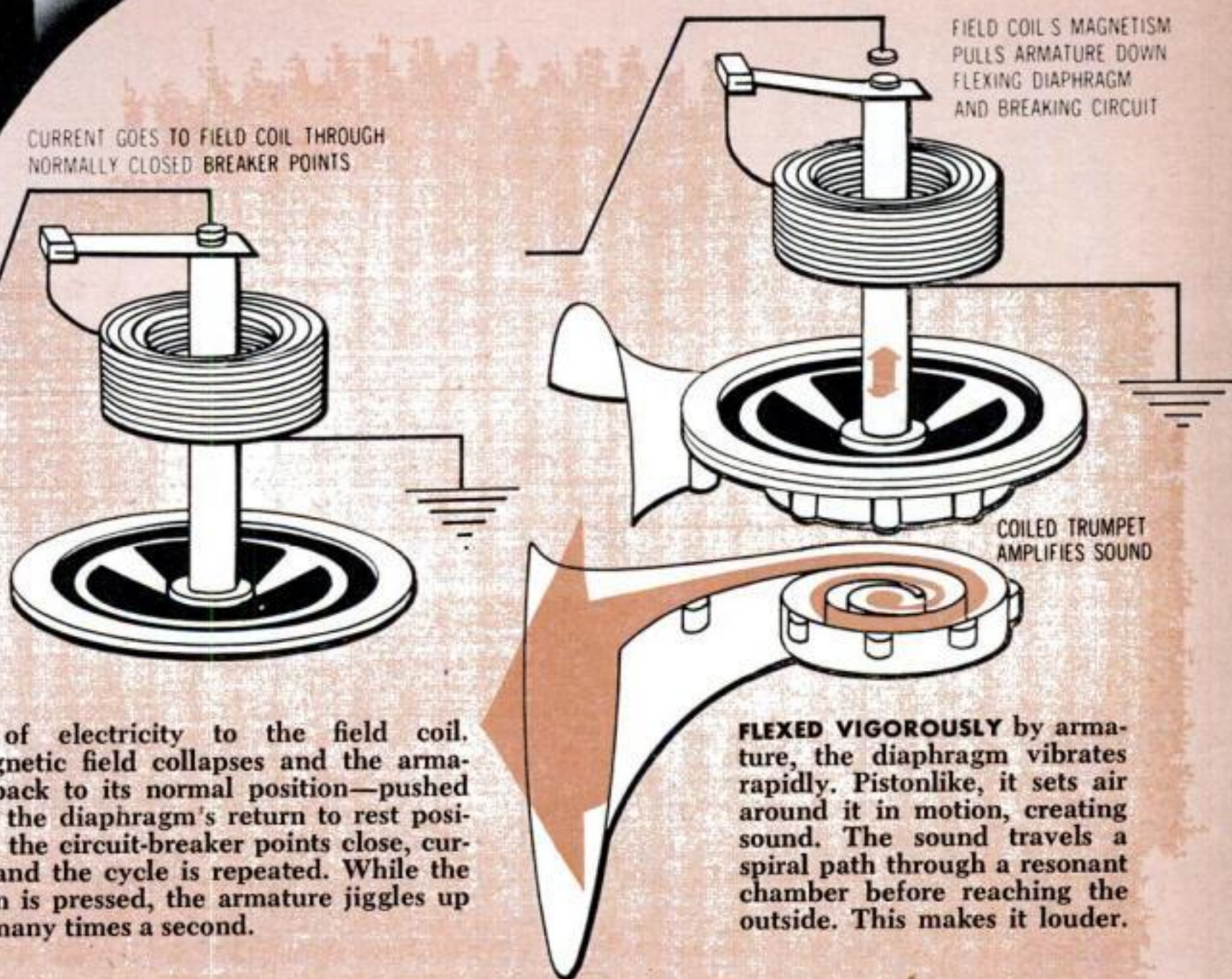
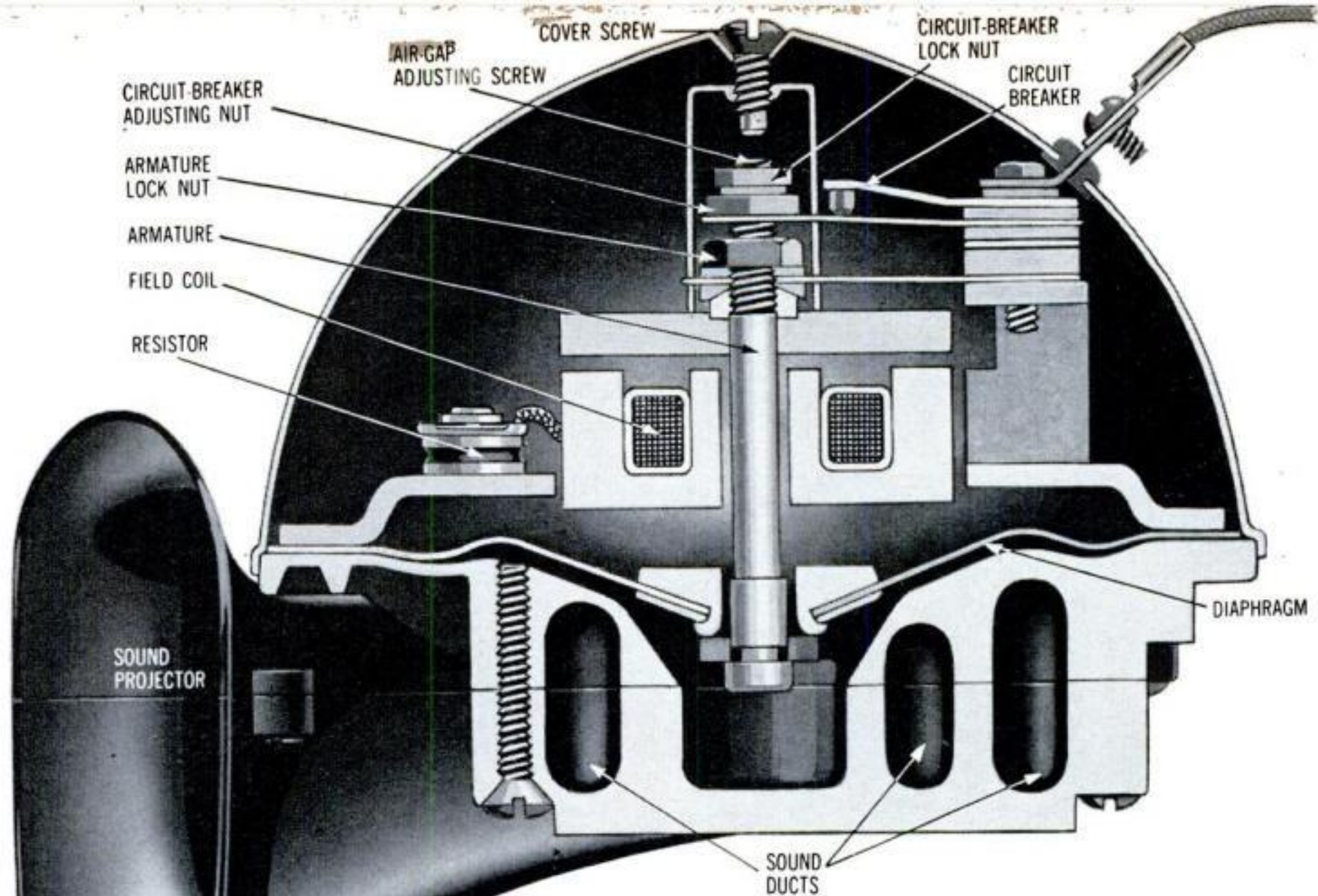
The horn makers worry about turnpike users overdriving their horns. At 65 m.p.h., they say, a signal may be heard only one to two car lengths ahead.—*Erik H. Arctander.*



WHEN YOU PRESS THE HORN BUTTON, current from the car battery flows through the coil in the horn relay. The coil magnetizes its iron core and pulls down the armature, closing a set of electrical contacts.

Now current flows from battery to horn by way of the relay contacts. Inside the horn, current flows through the circuit breaker (whose

points are normally closed) to the field coil of the electromagnet. Energized, the magnet pulls the armature down sharply—thereby flexing the diaphragm attached to the armature's lower end. The movement at the same time snaps the circuit-breaker point attached to the armature's upper end out of contact with its mate. This opens the horn circuit, momentarily cutting off



the flow of electricity to the field coil. The magnetic field collapses and the armature goes back to its normal position—pushed upward by the diaphragm's return to rest position. Again the circuit-breaker points close, current flows and the cycle is repeated. While the horn button is pressed, the armature jiggles up and down many times a second.

FLEXED VIGOROUSLY by armature, the diaphragm vibrates rapidly. Pistonlike, it sets air around it in motion, creating sound. The sound travels a spiral path through a resonant chamber before reaching the outside. This makes it louder.

**Come into the cockpit of the world's fastest airliner
to see what it's like when you are**

Flying the Atlantic by Jet



In planning the flight, the dispatcher had probed for soft spots in the prevailing

By Devon Francis

IN THE past year, jet airliners under the American flag carried 150,000 passengers across the Atlantic.

The jet is a new kind of flying machine. It makes the 3,250 miles to London from New York in 6½ hours. Between one day's dawn and the next, it can cross the ocean twice.

Its engines gulp fuel at more than twice the rate of piston engines. For a nonstop ocean crossing, its fuel load at takeoff can weigh more than a whole workhorse airliner such as the DC-6B. So every flight is reduced, simply and irrevocably, to pounds of weight. To that, and to minutes and seconds.

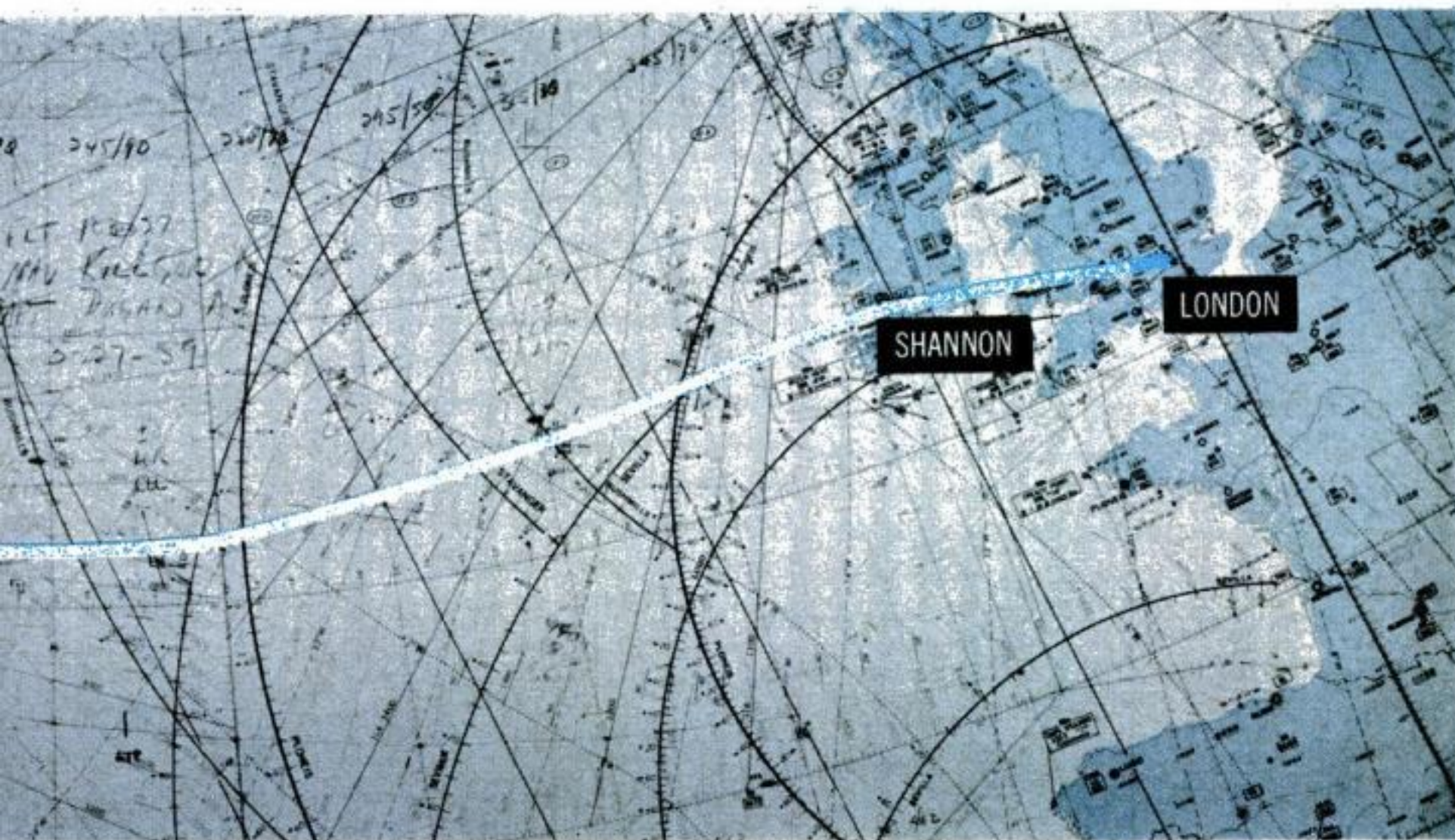
One afternoon recently, I boarded one of these airplanes at London Airport for New York.

Here is the story of that flight, as I saw it from the cockpit of a Pan American World Airways Jet Clipper:

On this sunny Wednesday, Capt. Arthur J. Dugan, sitting on the downwind lip of the runway, was ready for takeoff. He knew exactly how he would get westbound Flight 103, weighing almost 120 tons, off the runway and into the air. He already had done it meticulously—on paper.

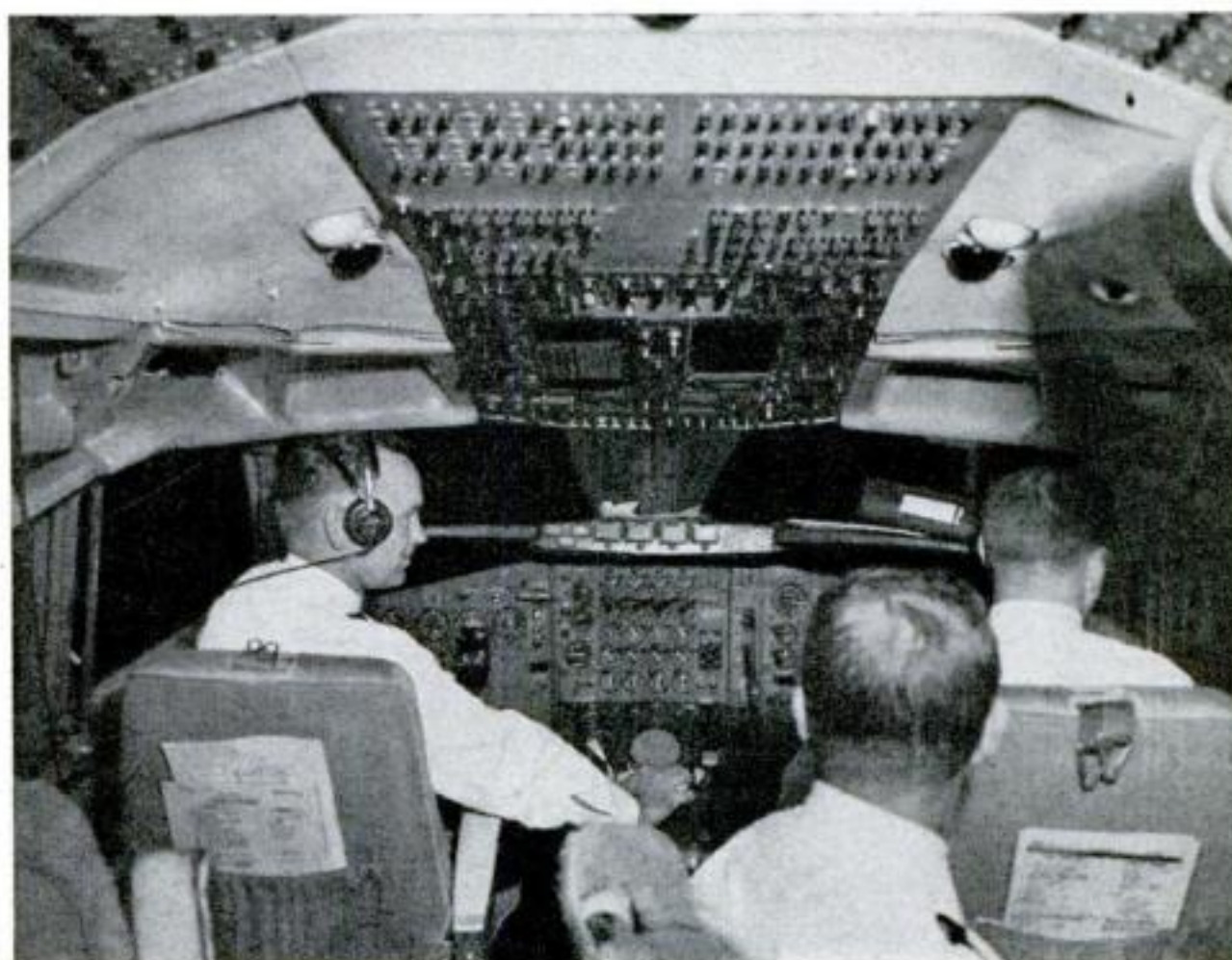
The total takeoff weight of his airplane, more than twice that of a piston transport, was rigidly fixed by three factors—ground temperature, wind and the necessity to climb fast. The temperature, now at 63 degrees, was important because the higher it is, the less thrust a jet engine produces. The plane had to

The climb-out, leaving a wake of four streamers of black smoke, caused by water injection, was rapid.



westerlies. The route chosen was not the shortest, but the winds were of lower velocity.

Winging out over the open sea past Shannon, at an altitude of seven miles, the flight-deck crew relaxed into familiar routine, laced with small talk. Clipper was four minutes behind schedule. Engineer Paul Eckhardt studied his engine temperatures and rate of fuel flow. Capt. Dugan and his first officer checked Eckhardt's figures.



CONTINUED

At eight miles a minute, there was no engine noise—only

gain altitude fast because London, like New York, has regulations to minimize jet sound on suburban eardrums.

Today a crosswind of 10 knots amounted to a condition of no wind at all. The gross weight became a simple matter of arithmetical put-and-take. The traffic department wanted some 27,000 pounds of



Blonde Mary Chugowski glanced at her watch. She had a date this evening 3,000 miles away.

payload aboard—111 passengers, baggage, cargo and mail. The gross could not exceed 237,560 pounds. Paradoxically, the only way to get this off the ground was to use 4,400 pounds of water for injection into the engines.

For two minutes, the water would add bulk—and therefore thrust—to the gale jetting from the tailpipes. It would also cool the engines, allowing the use of more fuel—meaning more thrust—within the 1,148-degree tailpipe heat limit.

Arithmetic of bulk. With a plane weight of some 119,000 pounds, that left 86,900 pounds of fuel. This was about 13,166 gallons, though Capt. Dugan figured it only in pounds-per-hour consumption. It would give him an “endurance” of seven hours, nine minutes in the air. If the trip had been eastbound, in a “jet stream,” the plane might have added as much as 200 miles an hour to its nor-

mal 575-m.p.h. cruising speed. Westbound, it had winds to buck. They would force Flight 103 to refuel at Gander.

Dugan scribbled his computation on the number of seconds it would take to reach a takeoff speed of 100 knots. It came to 30. His first officer, C. N. Warren, figured his separately—31. That was close enough. This innocent-looking ritual was vital to a safe takeoff technique.

When everybody was aboard, Dugan started his engines. An attendant on the concrete apron stoppered his ears against the whine with his fingers. The nylon-cord tires on the main landing gear had flat-spotted while the plane sat there, and the captain had to put on extra throttle to get moving.

By the time he had taxied to the end of the runway, he had gone through 54 items on his check list with his first officer—before starting engines, after starting them, before taxiing, during taxiing. Now he covered the last six before takeoff.

“Traffic?”

“Clear.”

“Turbos two and four?”

“Off.”

“Gyrocompasses? . . .”

At 12:37 p.m., Greenwich time, used universally by transatlantic planes, Capt. Dugan stood on his brakes and advanced the throttles on his four gas turbines to full r.p.m. It was 1:37 p.m. London local time and 8:37 a.m. in New York. Back in the cabin, blonde and pretty Mary Chugowski, one of the stewardesses, glanced at her wrist watch. She had a date this evening in New York.

A thousand pounds of fuel had already been used up since loading, when Capt.

At London, 86,900 pounds of fuel—13,166 gallons—had been pumped into the wing tanks.



the muted sound of a great wind

Dugan released his brakes. At the same instant, Warren tripped a stopwatch on the instrument panel.

In 31 seconds the jet was registering 100 knots, about 115 miles an hour. That meant the power put out by the engines was right on the button. If it had not been, there was runway enough at that point to chop the throttles and brake to a stop.

As the air-speed needle neared the takeoff speed, 147 knots, other dials were registering engine revolutions—10,775 a minute.

"Rotate," said Warren, his eyes on the dials. The term, as new as jet airliners, means: hoist her nose up.

Dugan pulled back on the control column. For a long second, nothing happened. Then the big jet was airborne, gently and smoothly.

The takeoff had required 52 seconds. The moment the eight wheels of the main landing gear left the ground, automatic brakes stopped their rotation. If they had continued to spin, gyroscopic effect would have made them resist sideways retraction into the plane's belly.

The climb-out, leaving a wake of four streamers of black smoke, caused by the water injection, was rapid.

Climbing steeply, the jet pointed westward toward Strumble, on the Irish Sea. No longer was there engine noise, but only the muted sound of a great wind.

Problems of navigation. Now the flight crew cleaned up the check list. At takeoff the flap setting for additional lift had been 30 degrees. Since the plane had crossed the 165-knot mark, flap had been reduced progressively until it was back to zero. The ignition had been left on

At New York the passengers streamed off, clutching the trinkets bought in Europe.



Landing at Gander, Newfoundland, the jet was across the Atlantic—2,388 miles in five hours.

throughout the takeoff to meet the possibility of an engine flameout. Now the ignition was off, together with the water pumps.

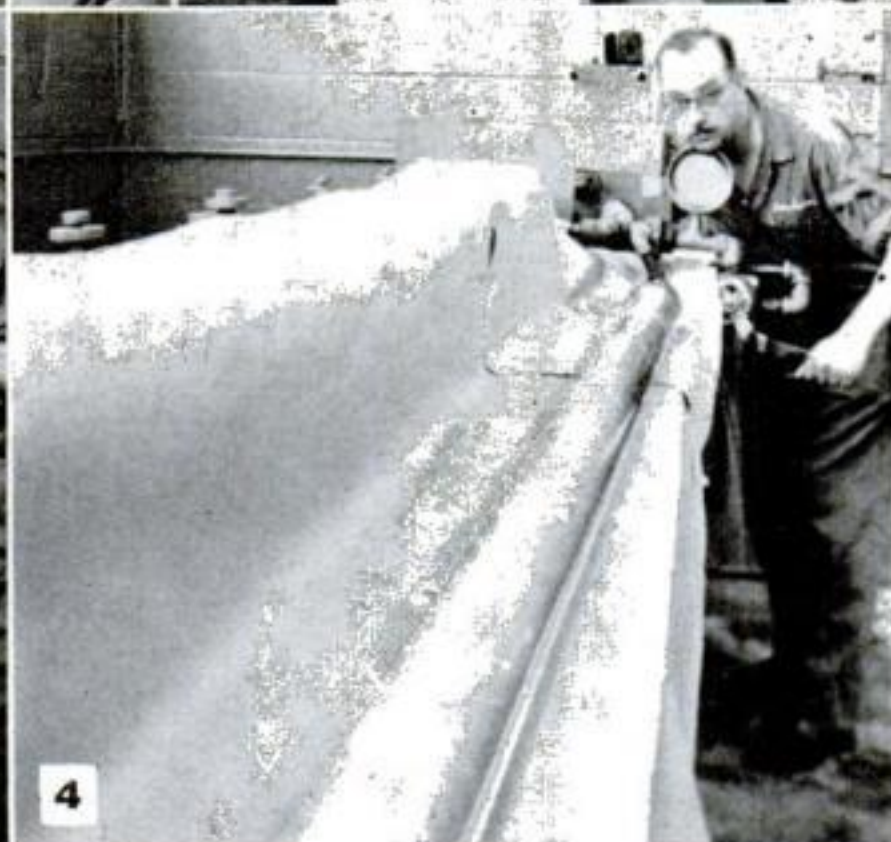
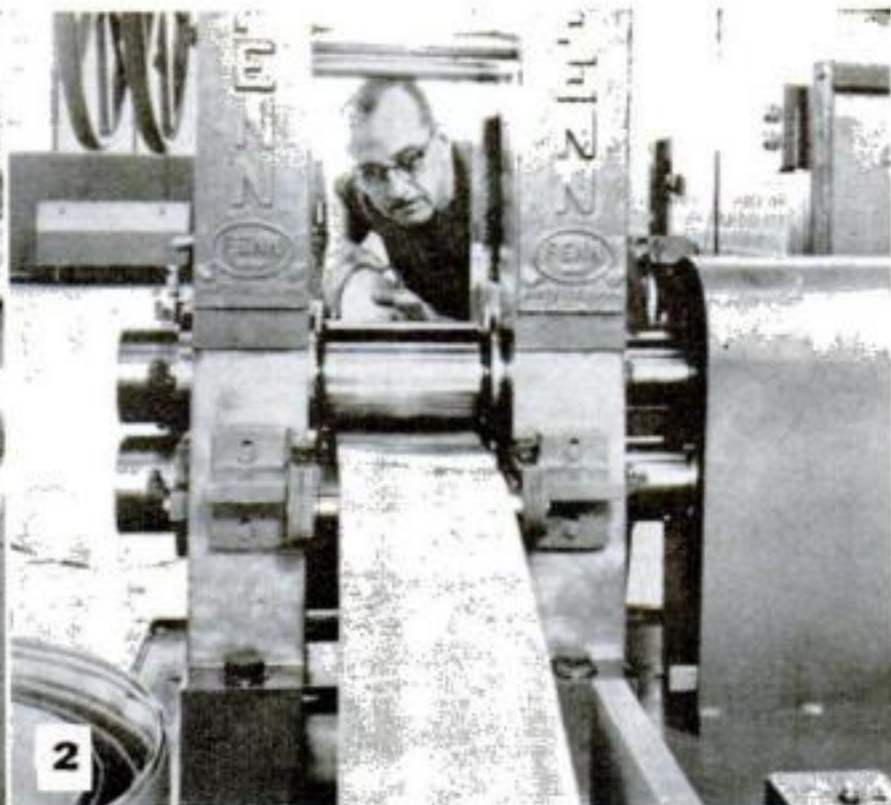
Capt Dugan and his crew had three tasks in crossing the ocean, each complicated by the speed of their airplane and its voracious appetite for fuel. They had to get across with enough reserve fuel to fly to their nearest alternate airport, Sydney, Nova Scotia, and orbit there for 45 minutes in case weather prevented a landing at Gander. They had to navigate through more than 2,000,000 cubic miles of air in a corridor 130 miles wide, allowed them under international air-traffic rules. And they had to check in with monitoring land stations that demanded position reports each 30 to 40 minutes and behaved, each of them, as though the plane were a personal possession.

Preflight on paper. The trip had been "preflown" on paper as carefully as had the takeoff. From a score of weather stations in the U. S. and Canada, and a half-dozen weather ships permanently stationed in the North Atlantic, had been drawn a prognostic chart—a "prog"—describing a "least-time line," in six segments. Capt. Dugan was not interested in the weather on the route as such. He would fly above it. What did interest him were the temperatures and winds.

Outside temperatures warmer than the minus 70 degrees F. that was ideal for the Clipper's jet engines cost fuel. Each degree would cost the equivalent of 2,500

[\[Continued on page 262\]](#)

PS Picture News



INFLATABLE PIPE. This thin-wall metal tubing is shipped flat to save space. It is made as a seamless tube (1), flattened in rollers (2), connected on delivery

to a compressed-air or water outlet (3) and blown up for use (4). Calumet & Hecla, Allen Park, Mich., calls it Strubing, makes it in lengths to 15,000 feet.



RADAR LANDING. The big B-47 jet bomber above is being brought to a smooth landing with only the radar equipment at right. Converted to 600-m.p.h.

pilotless planes by Lockheed and Sperry, two of the craft are being tried out at Eglin Air Force Base, Fla., for use in realistic testing of U. S. air defenses.

New Ideas from the Inventors

.....

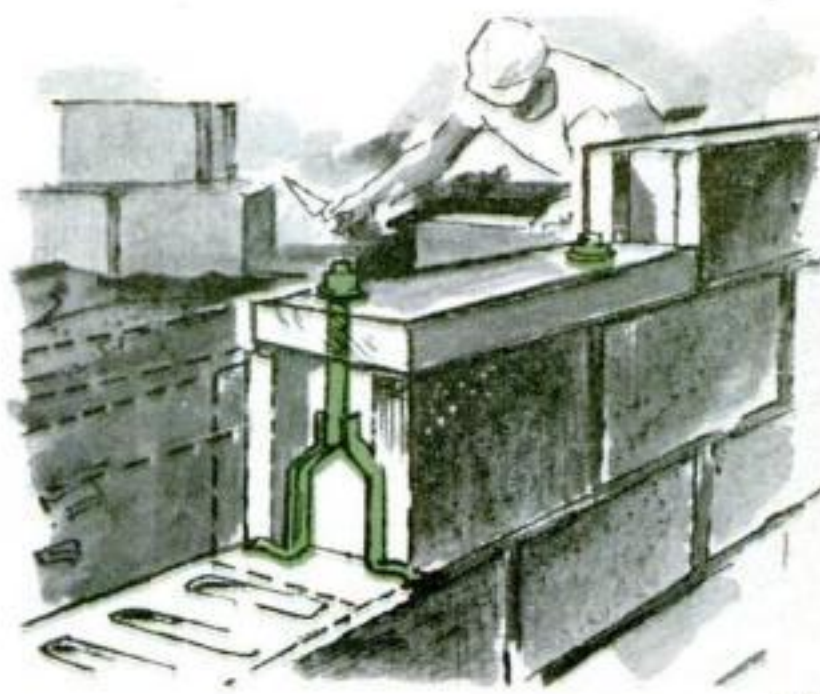


Spray Brands Purse Snatcher. With a spray bomb like this clipped to her purse strap, a woman needn't be defenseless against muggers or robbers. A squeeze

would spray an acid from one chamber and a luminous dye from another. The combination would temporarily blind an attacker, and mark him for identification.

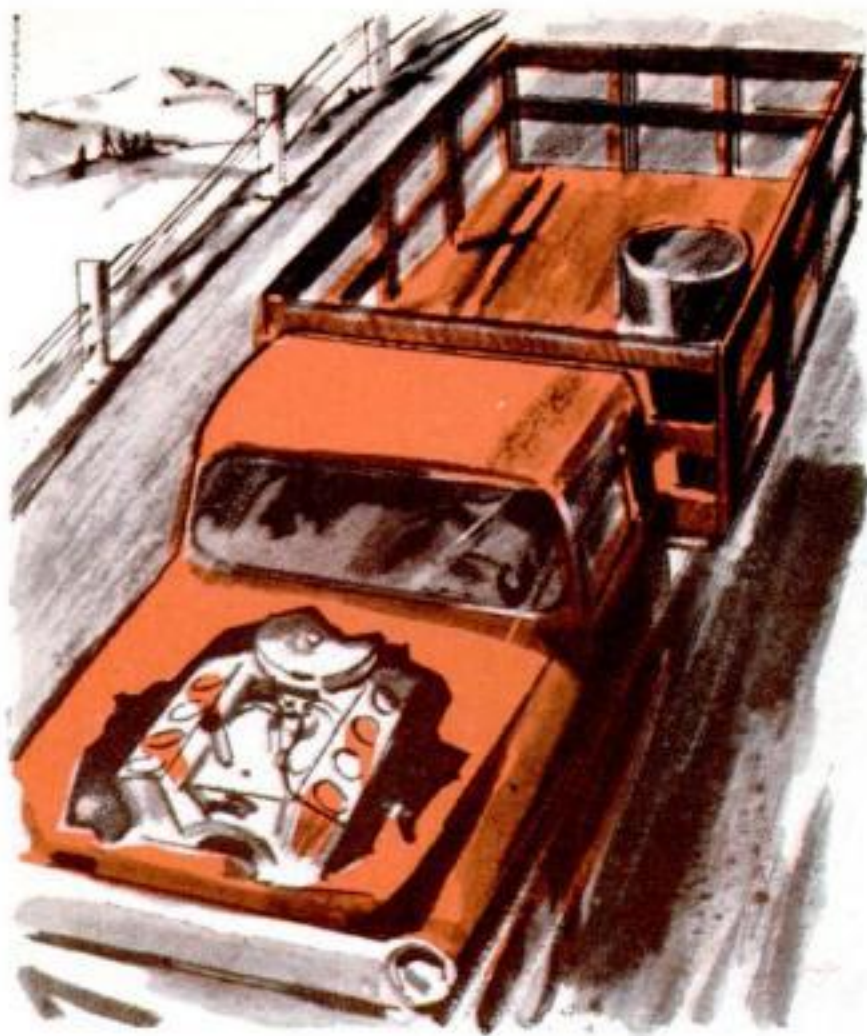
Flashlight Becomes Blinker. You could turn any ordinary flashlight into a signal blinker—for emergency roadside repairs—by substituting this spring-wound base for the bottom cap. The mechanism would flash the light on and off by alternately pressing and releasing the cells.

Bolt Fixes Sill to Block. Masons and do-it-yourself garage builders could attach sills to these anchoring bolts without waiting for mortar to set. Easily inserted in the hollow of a cement block, the springy, welded-on legs would center the bolt, hold it secure and upright.



CONTINUED

More Inventors' Ideas



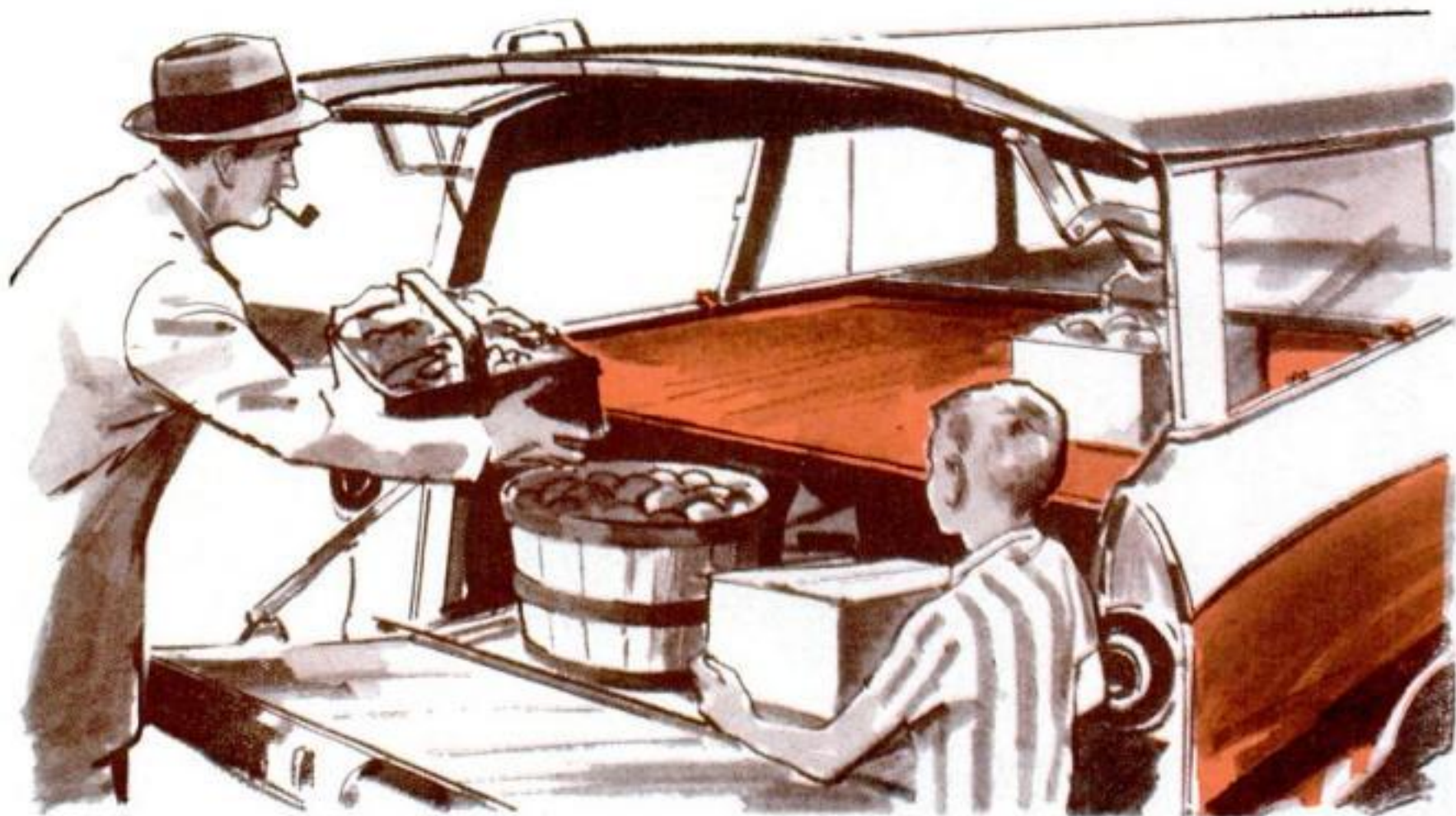
Alternating Cylinders Save Gas. Car and truck engines are most efficient at higher loads, so this GM-patented fueling system would respond to lowered throttle or torque demand by firing alternate cylinders—on a rotating schedule—to make them work harder but more economically.

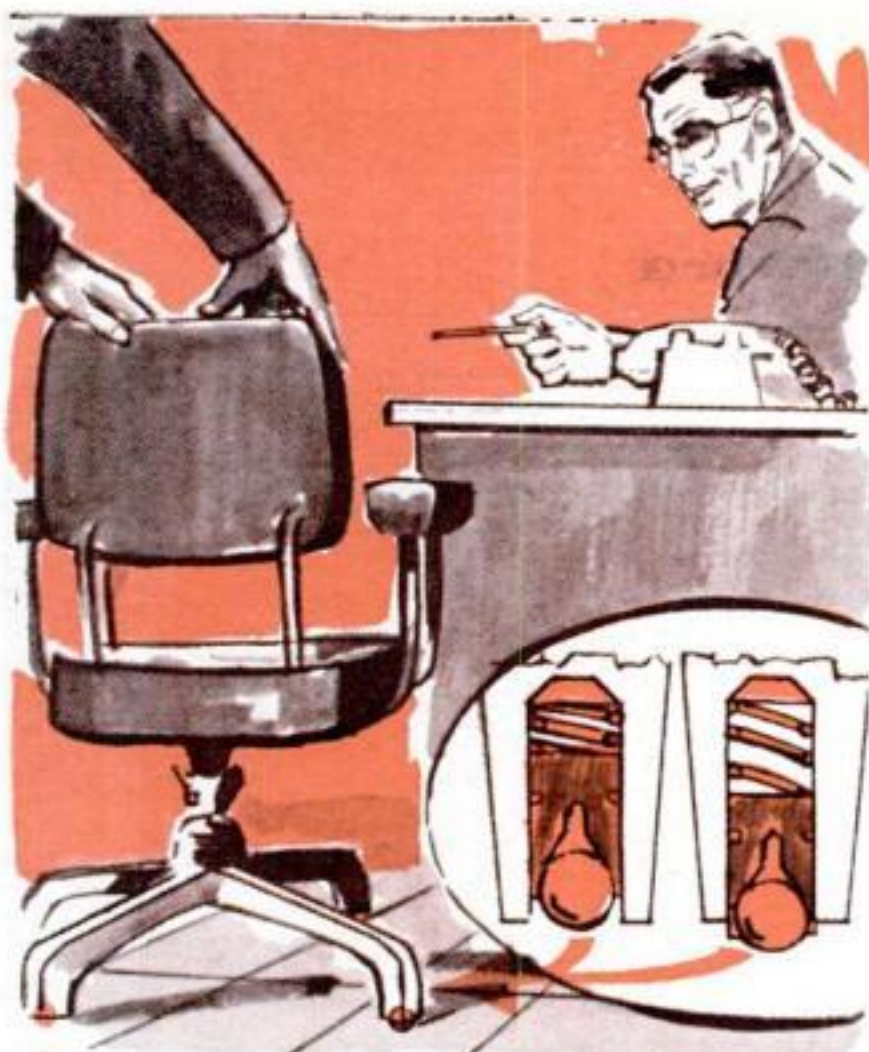


Can Collar Catches Paint Spills. Slipped into the neck of a standard can, this extension collar would keep paint from slopping as you stirred it or mixed in color or thinner. It would make pouring easier, permit tighter resealing by keeping paint out of the lid-retaining groove.

Shelf Increases Cargo Space. The family wagon could load more packages more easily if it had a removable shelf to double floor space. One inventor rests a

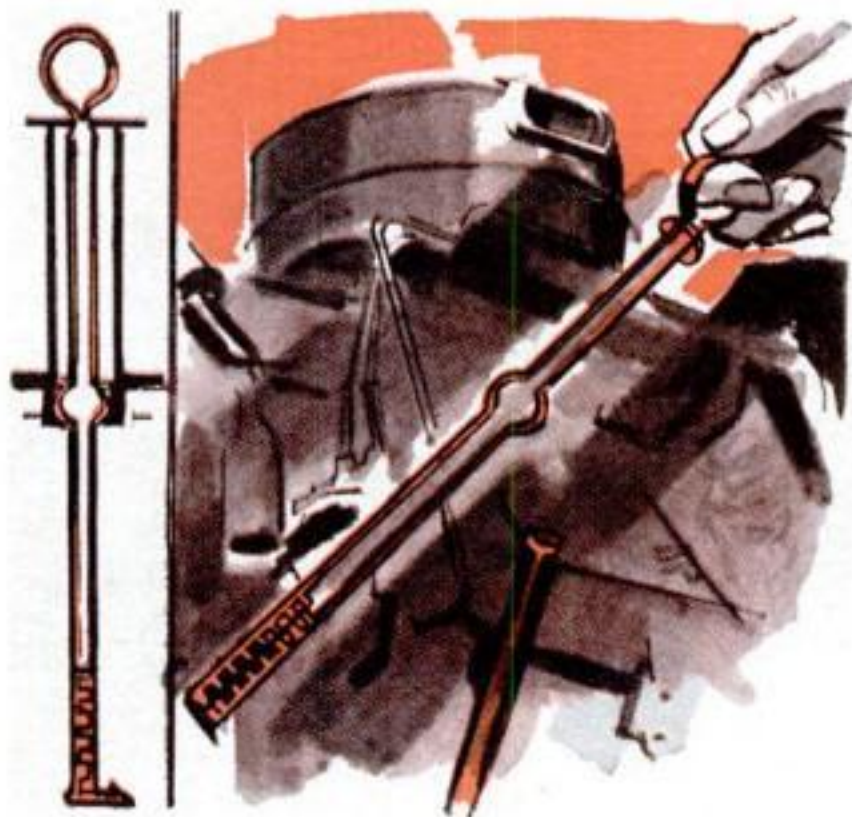
divider on crisscross arms unfolding from brackets clamped to the window ledges. When not needed, shelf and supporting arms would fold snugly out of the way.





Caster Retracts Under Weight. A chair resting on these spring-loaded glides could be moved easily but would stay put when you sat down. The weight-retracted rollers could be used also on machine bases and other usually stationary objects that must occasionally be moved.

Dipstick Wipes Itself. Interlocking notches on a two-legged dipstick would let you gauge crankcase level with a single, no-wipe dip. A spring collar would mesh the teeth when the legs were fully inserted but let them separate at the first tug. Oil that then filled the submerged notches would be held by capillary action until you had taken your reading.



Disappearing Posts Foil Fans. Goal posts wouldn't be destroyed by enthusiastic rooters if they could be lowered by motor promptly into vertical casings in the ground. The crossbar would slide up as the posts submerged, and rest in the below-ground motor trench.

The following patents have been issued on these inventions: Thief chaser—No. 2,876,935 to D. P. Lindberg, Chicago; Flasher—No. 2,763,850 to J. N. Nieratko, Englewood, N. J.; Sill bolt—No. 2,829,514 to E. R. MacLean, Elmira, N.Y.; Economy engine—No. 2,875,742 to J. Dolza, Fenton, Mich.; Can Collar—2,771,208 to J. Chovanes, Hazleton, Pa.; Wagon shelf—2,767,896 to C. E. Beck, Iowa City; Casters—2,770,831 to W. W. Angelica, Cicero, and R. T. Miller, Clarendon Hills, Ill.; Dipstick—No. 2,771,680 to G. H. Lee, Oak Ridge; Posts—No. 2,884,252 to J. E. Thompson, Oklahoma City.

Copies of patents may be ordered, by number, from the Commissioner of Patents, Washington 25, D.C., at 25 cents each. To write to an inventor, if the address given above is insufficient, you may address him (by name and patent number) in care of the Commissioner of Patents.

Why I Believe in

Scientific evidence, says this authority, backs up mariners' tales of monsters of the deep—and someday we may catch one!

By Dr. Anton F. Bruun, as told to Wesley S. Griswold

I HAVE never seen a giant sea serpent, but I have a very good reason for believing that such a creature exists.

At least, I know that somewhere in the seas there must be eel-like fish of enormous size, for I have seen one of them in what you might call its tadpole stage. Even then, it was *six feet long*. That is 24 times as big as the average fresh-water eel is at that point in its growth!

I saw this extraordinary specimen on a February night in 1930, when I was a young assistant zoologist aboard a Danish trawler on a research expedition off the southwest coast of Africa. We were cruising between the Cape of Good Hope and the tiny island of St. Helena, where Napoleon died in exile. Later, I will tell you why this location seems especially significant to me.

We were hunting for marine fish larvae in the surface layers—the top 300 feet or so—of the ocean. We knew that when we found larvae, we would be close to the breeding grounds of their parents, and it was breeding grounds that we were trying to locate.

Now, the larvae of all eels have a characteristic appearance, as typical of their family as the tadpole is of the frog clan. They look like little strips of transparent tape, with a tiny head and a pair of eyes at one end. Their bodies are very hard to see, but their eyes are silvery and shine in the light.

The scientific name for the larval form of any eel is *leptocephalus*, a Greek word meaning “creature with a little head.”

The *leptocephalus* of the common fresh-water eel is about two to three inches long, but it grows into an adult that averages three feet in length. The *leptocephalus* of the conger eel is usually around five inches long, but a grown-up conger is often eight to 10 feet long and weighs 100 pounds or more.

Six-foot baby. You can imagine how astounded we were, on that long-ago February evening, when we found in one of our nets a *leptocephalus* six feet long! It had a small, pointed head, with long fangs in the jaws, and seemed to be a typical larval eel in all respects except

for its gigantic size. If we were to apply to it the same ratio of growth that we know to be true of other members of the eel family, we could expect that this monster we netted might have grown to be 72 feet long. But I prefer always to be conservative. Let us say that at the very least it would have reached a length of 30 feet, and probably 50.

Any mariner who ever saw an eel that big would be justified in reporting that he had seen the Great Sea Serpent of the legends.

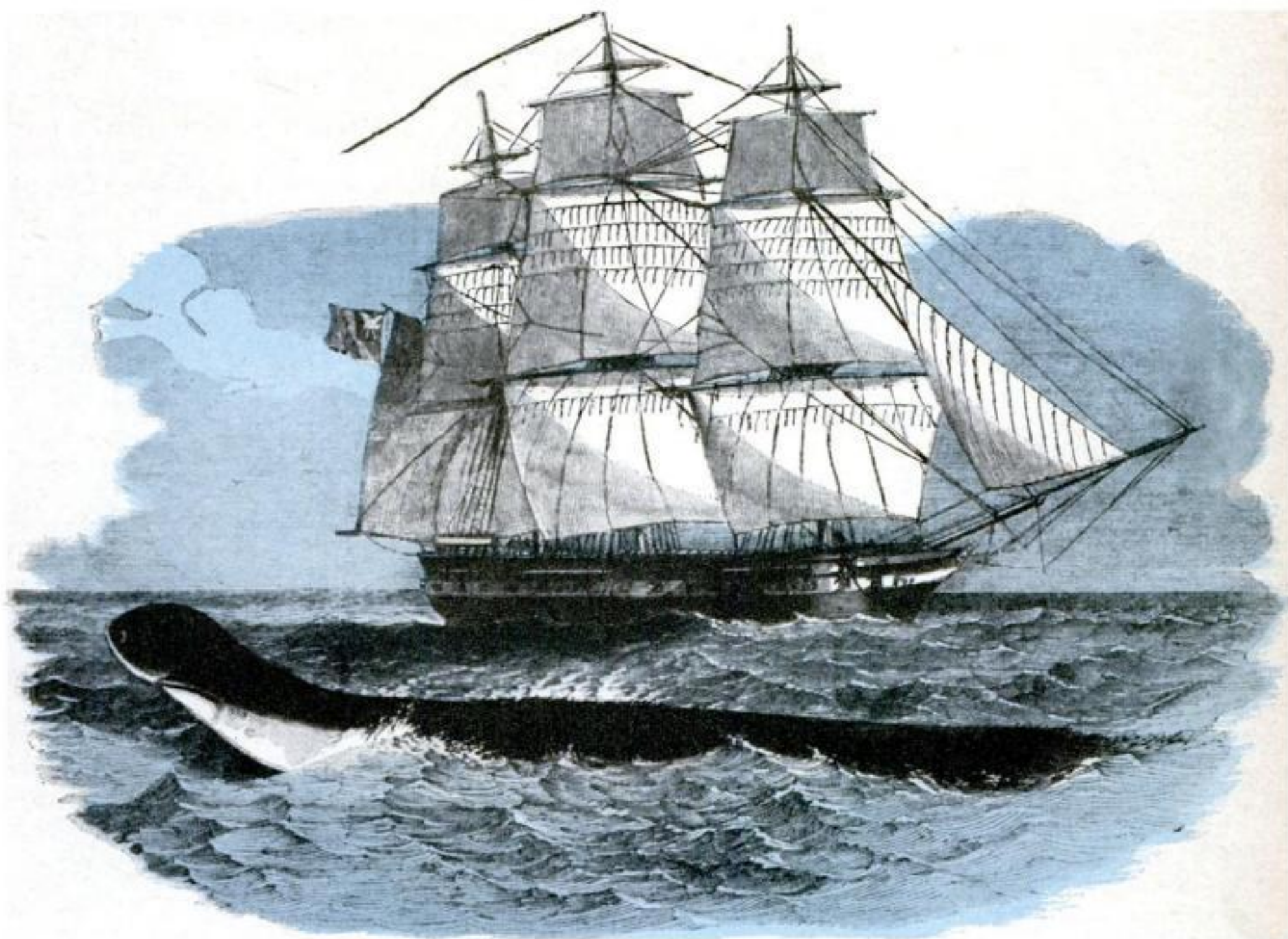
Elusive parents. We hoped eagerly, of course, that we might find one of the parents of our giant *leptocephalus* swimming around in the vicinity, but we weren't that lucky. We had to be content with two undeniable facts: Our baby must have had parents, and they must have been near where we found it.

But we never saw them, and in 30



Editor's Note: Dr. Anton F. Bruun, lecturer on oceanology at the University of Copenhagen, is a world-renowned marine biologist. He expressed his fascinating opinions on the subject of sea serpents to POPULAR SCIENCE on the eve of departing for the South China Sea and the Gulf of Thailand, as scientific leader of a year-long University of California expedition to explore marine resources in those oceanic regions.

Sea Monsters



THOUGH GREATLY EXAGGERATED in relative size in this 101-year-old drawing from the *Illustrated London News*, the sea monster seen from the

Daedalus looked like this, declared the ship's captain when he saw the picture. His official report had stated it was 15 or 16 inches thick.

years of extended travels on the oceans of the world, I have not seen any creature, or even a small part of one that could be identified as a member of that spectacular species.

I am convinced, however, that other people have, in the course of centuries past.

I have read most of the accounts of early voyages of discovery, and I have been struck by the fact that many sightings of so-called sea serpents were made in the same general area of the South Atlantic where we found our great leptocephalus.

Unquestionably, some of those ancient mariners had merely seen schools of porpoises in fog or dim light, and mistaken the rhythmically curving backs of those

frolicsome creatures for the coils of a sea serpent.

But some of the objects that mystified and awed them were definitely not porpoises.

Consider the most famous sighting of all, reported by the captain of the British frigate Daedalus in October, 1848. This occurred in the course of a voyage between the Cape of Good Hope and St. Helena.

Hard facts from keen observers. The remarkable experience of Capt. Peter M'Quhae and fellow-officers on the Daedalus was reported in the *London Times* as soon as the frigate had docked in England. It created a sensation, and the Admiralty at once asked Capt. M'Quhae for

CONTINUED

101

Have people ever seen sea monsters? "I am convinced,"

an official explanation of what he had seen.

Here is part of his written reply:

"... at 5 o'clock p.m., on the 6th of August last, in latitude 24° 44' S., and longitude 9° 22' E., the weather dark and cloudy, wind fresh from the N.W., with a long ocean swell from the S.W., the ship on the port tack heading N.E. by N., something very unusual was seen by Mr. Sartoris, Midshipman, rapidly approaching the ship from before the beam. The circumstance was immediately reported by him to the officer of the watch, Lieutenant Edgar Drummond, with whom ... I was at the time walking the quarterdeck. The ship's company were at supper.

"On our attention being called to the object, it was discovered to be an enormous Serpent, with head and shoulders kept about four feet constantly above the surface of the sea; and as nearly as we could approximate by comparing with the length of what our maintopsail-yard would show in the water, there was at the very least sixty feet of the animal on the surface of the water ... It passed rapidly, but so close under our lee quarter that had it been a man of my acquaintance, I should have easily recognized his features with the naked eye; and it did not, either in approaching the ship or after it had passed our wake, deviate in the slightest degree from its course to the S.W., which it held on at the pace of from 12 to 15 miles per hour, apparently on some determined purpose.

"The diameter of the Serpent was about 15 or 16 inches behind the head, which was,

without any doubt, that of a snake; and it was never, during the 20 minutes that it continued in sight of our glasses, once below the surface of the water—its colour a dark brown, with yellowish white about the throat. It had no fins, but something like the mane of a horse, or, rather, a bunch of seaweed, washed about its back. It was seen by the quartermaster, the boatswain's mate, and the man at the wheel in addition to myself and officers above mentioned ..."

I am ready to accept the testimony of those presumably hard-headed and certainly experienced men of the sea as substantially accurate.

Ship's gun vs. serpent. Capt. M'Quhae's letter was widely reprinted. One quick response to it was a report that on September 20, some six weeks after the sighting from the *Daedalus*, the officers and crew of the American brig *Daphne* had had a similar but more dramatic experience. At the time, the *Daphne* was in South Atlantic waters, too, but many miles northwest of where the *Daedalus* had been on August 6.

The Americans had seen "a most extraordinary animal" with "the appearance of a huge serpent or snake." They had loaded a deck gun with spikes. When the serpent was at a distance of only 40 yards from the vessel, they fired at it. The account continued:

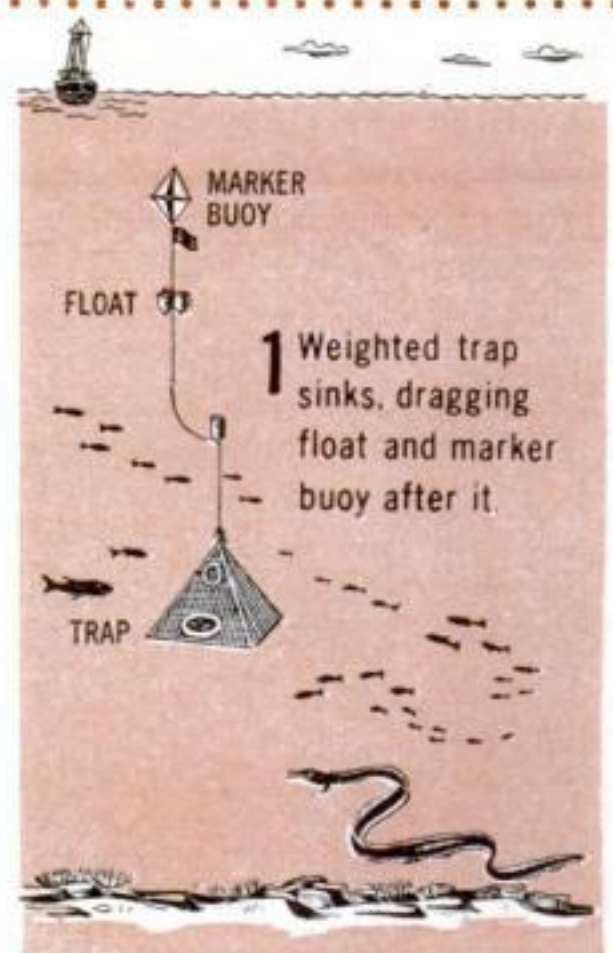
"It immediately reared its head in the air and plunged violently with its body, showing

Will This Trap Catch a Sea Monster?

If sea serpents exist, this pyramid-shaped trap offers a likely way to catch them. So say Scripps Institution of Oceanography researchers at La Jolla, Cal., who are testing it for snaring all sorts of deep-sea creatures. Into an aluminum-framed cage of fiberglass netting, an upper conical entrance invites swimming fish; a lower one, crawlers and wrigglers. Supposing sea serpents to be giant eels, they'd find the trap alluring; eels wriggle into holes, curl up, await food going by.

Weighted with an iron base and dropped from a ship, the trap sinks to the bottom, dragging along a gasoline-filled plastic float and a marker buoy. After time enough to gather specimens, a corroding magnesium-metal link breaks, letting a spring detach the heavy base. The float draws the lightened trap to the surface, and the marker buoy displays a radar reflector, a flag, and a flashing light to guide searchers.

Following successful sea trials of a model with six-foot sides, a 12-footer has been designed. Larger ones are in prospect if there are signs of still bigger game to be caught.



declares marine scientist

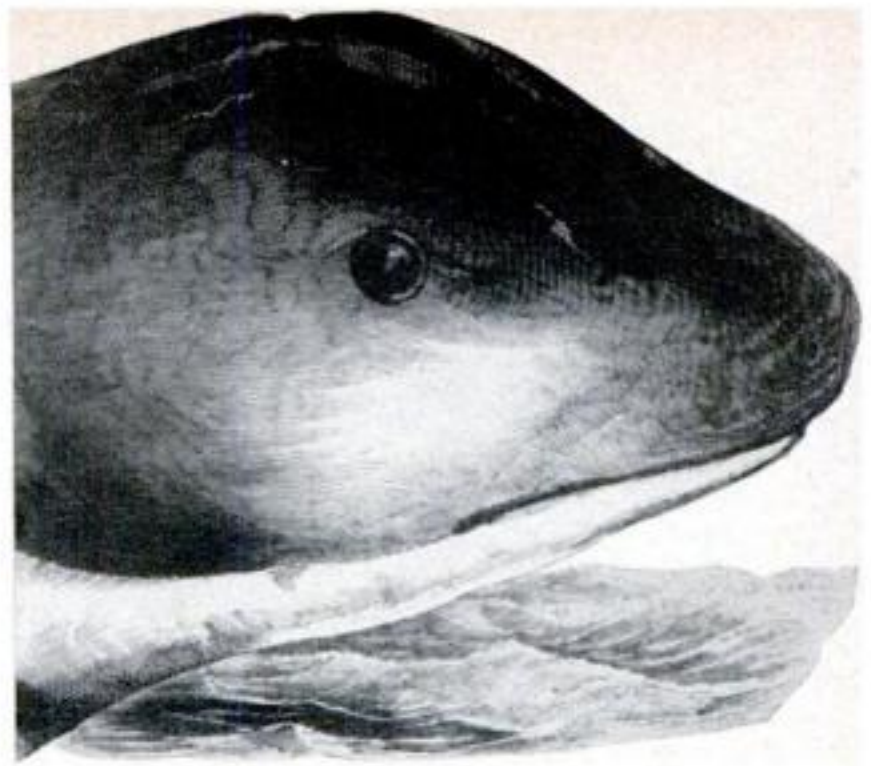
evidently that the charge had taken effect. The Daphne was to leeward at the time, but was put about on the starboard tack, and stood towards the brute, which was seen foaming and lashing the water at a fearful rate. Upon the brig nearing, however, it disappeared, and, though evidently wounded, made rapidly off at the rate of fifteen or sixteen knots, as was judged from its appearing several times upon the surface. The Daphne pursued for some time, but, the night coming on, the master was obliged to put about and continue his voyage.

"From the description given by the mate, the brute must have been nearly 100 feet long, and his account of it agrees in every respect with that lately forwarded to the Admiralty by the master of the Daedalus..."

Expert testimony. As a scientist, though, I am more impressed by first-hand reports to the Royal Zoological Society of Great Britain by Michael J. Nicoll and E. G. B. Meade-Waldo, two zoologists, who were aboard the yacht Valhalla, off Parahiba, Brazil, on December 7, 1905. It was in the middle of the morning, when Nicoll suddenly turned to Meade-Waldo and said, "Is that the fin of a great fish?"

Wrote Meade-Waldo:

"I looked and immediately saw a large fin or frill sticking out of the water, dark seaweed-brown in colour, somewhat crinkled at the edge. It was apparently about six feet in length and projected from 18 inches to two feet from the water.



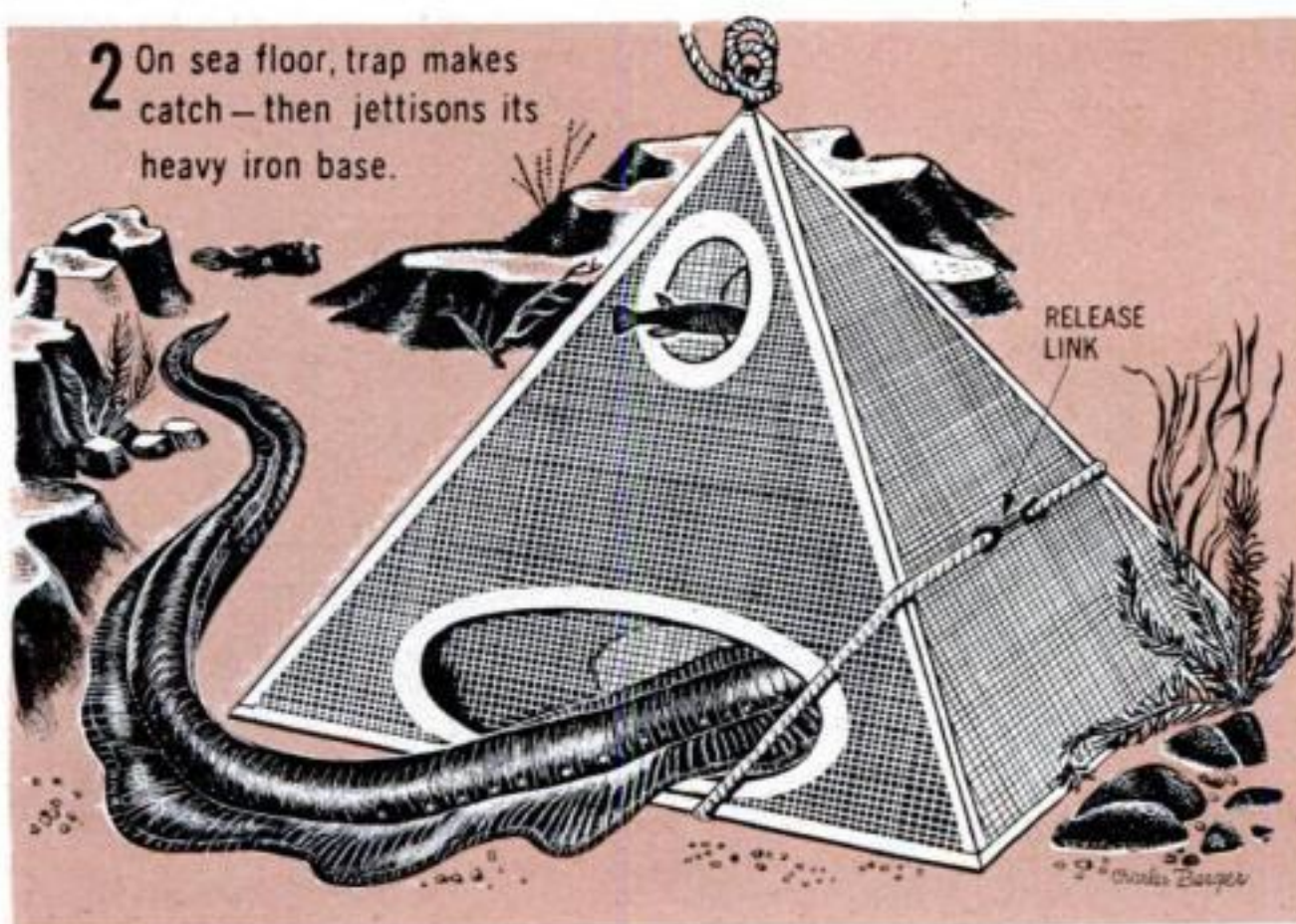
THE MONSTER SWAM SO CLOSE to the stern of the Daedalus that its skipper reported, "Had it been a man of my acquaintance, I should have recognized his features with the naked eye."

"I got my field glasses onto it, and almost as soon as I had them on the frill, a great head and neck rose out of the water. The neck appeared about the thickness of a slight man's body, and from seven to eight feet was out of the water; head and neck were all about the same thickness.

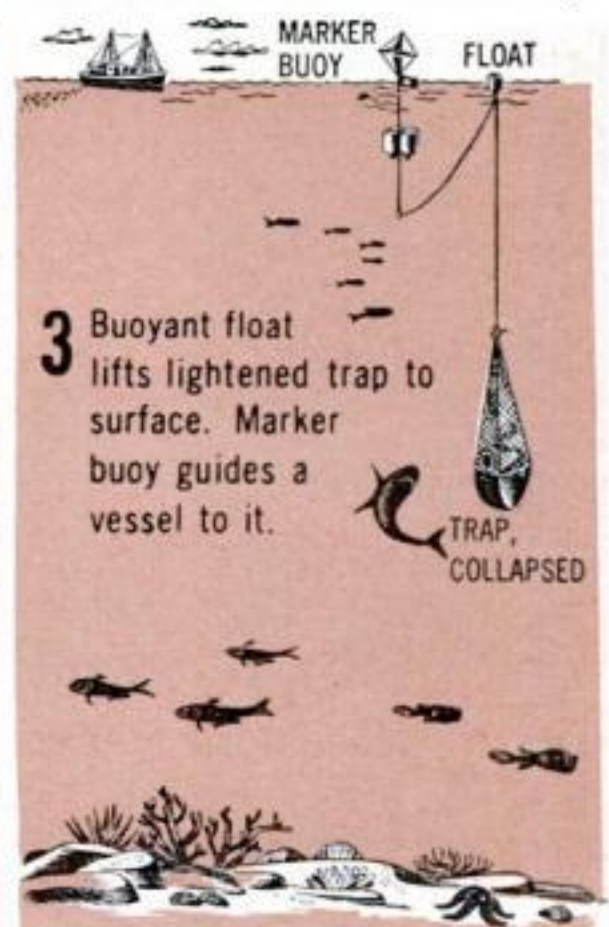
"The head had a very turtle-like appearance, as had also the eye. The colour of the head and neck was dark brown above and whitish below—almost white, I think.

"I could see the line of the mouth, but we were sailing pretty fast, and quickly drew away from the object, which was going very slowly. It moved its neck from side to side in a peculiar manner..."

[Continued on page 270]



2 On sea floor, trap makes catch—then jettisons its heavy iron base.



3 Buoyant float lifts lightened trap to surface. Marker buoy guides a vessel to it.

TRAP, COLLAPSED

A Dream Clubhouse for Space-Age Boys

TOMORROW'S kids will play with solar energy and atomic batteries. They'll tinker with radar and spacecraft engines. To match those advanced hobbies, the Boys' Clubs of America asked designers to plan "Boy-Topia," a clubhouse of the future, with:

- An aircraft work area and shops
- Television and radar labs
- A central building with library, lecture halls, lounge and observation tower

The traditional stadium, swimming pool and gym are there, too. Most facilities will be housed under parabolic-arched plastic shells, either air-supported or poured over metal frameworks. Designers were Griswold, Heckel, and Keiser Associates, Inc., of New York.



Building design reflects space age curves



The social center houses a theater and community hall under a canopy.



Four cable-supported arches frame the central complex. Rising above it is the observatory.



Radar and television labs are set off in the aircraft work area.

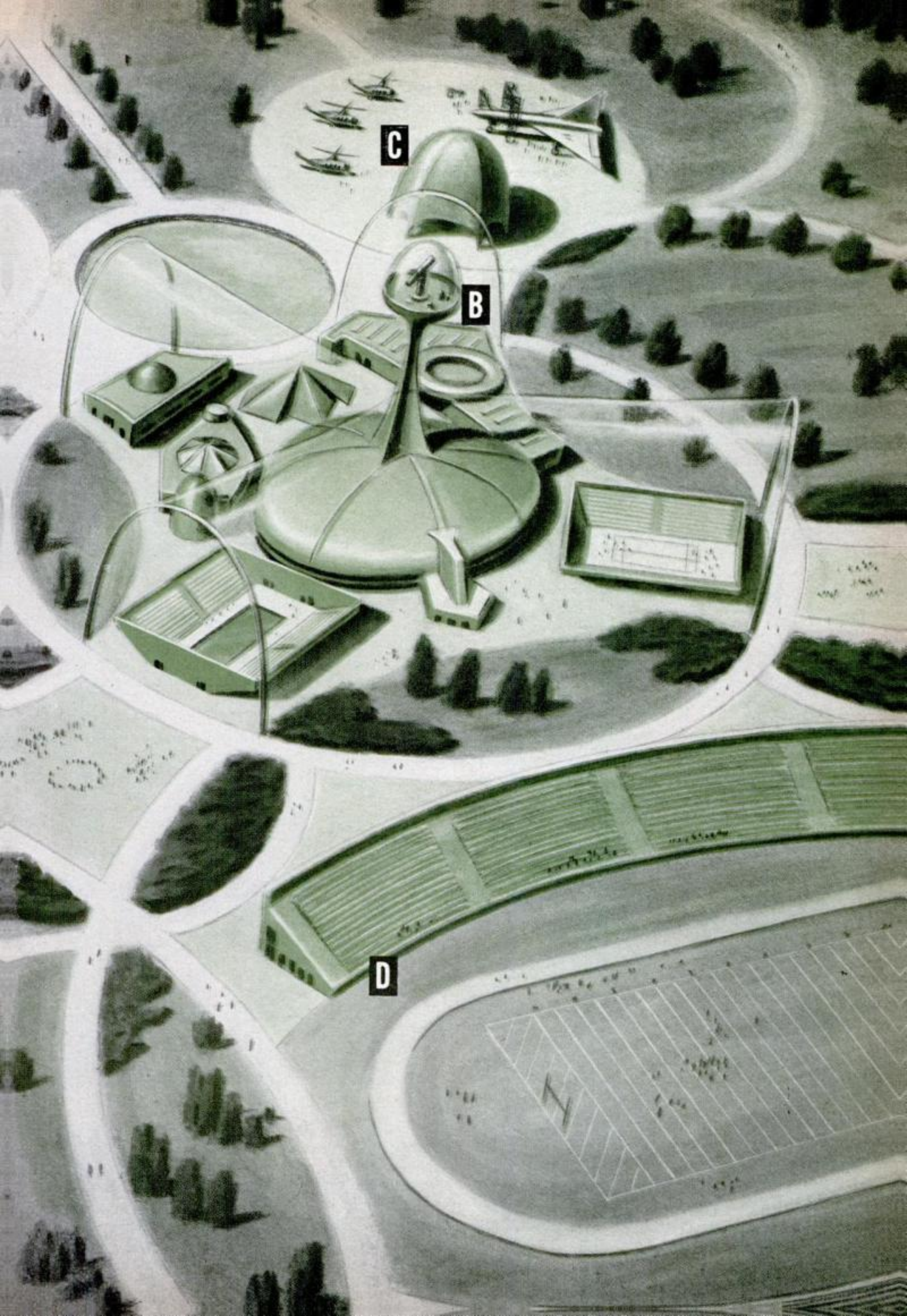


The football stadium will fend off weather under a movable plastic roof. It'll be sprayed over elliptical metal ribbing. The effect—somewhat like a snail snug in its shell.



In contrast to curved arches, typical housing soars vertically.

E





1. "TEA BAG" is hung from davit swung out-board. It is made of manila rope held in shape by two metal rings. Rope pendants suspended from the larger ring at the bottom have a drawstring running through them.

2. BOBBING CAPSULE is hauled to the side of the ship and a rope is run through a shackle in its end to keep it from floating away out of reach. The net, poised over the nose cone, is then dropped into place.



Navy Bags Missile Nose Cones

THE Navy is trying out a basket to snatch missile nose cones from the sea. If the experiments succeed, the rig may be used to recover the first capsule carrying a man into space in 1961. The

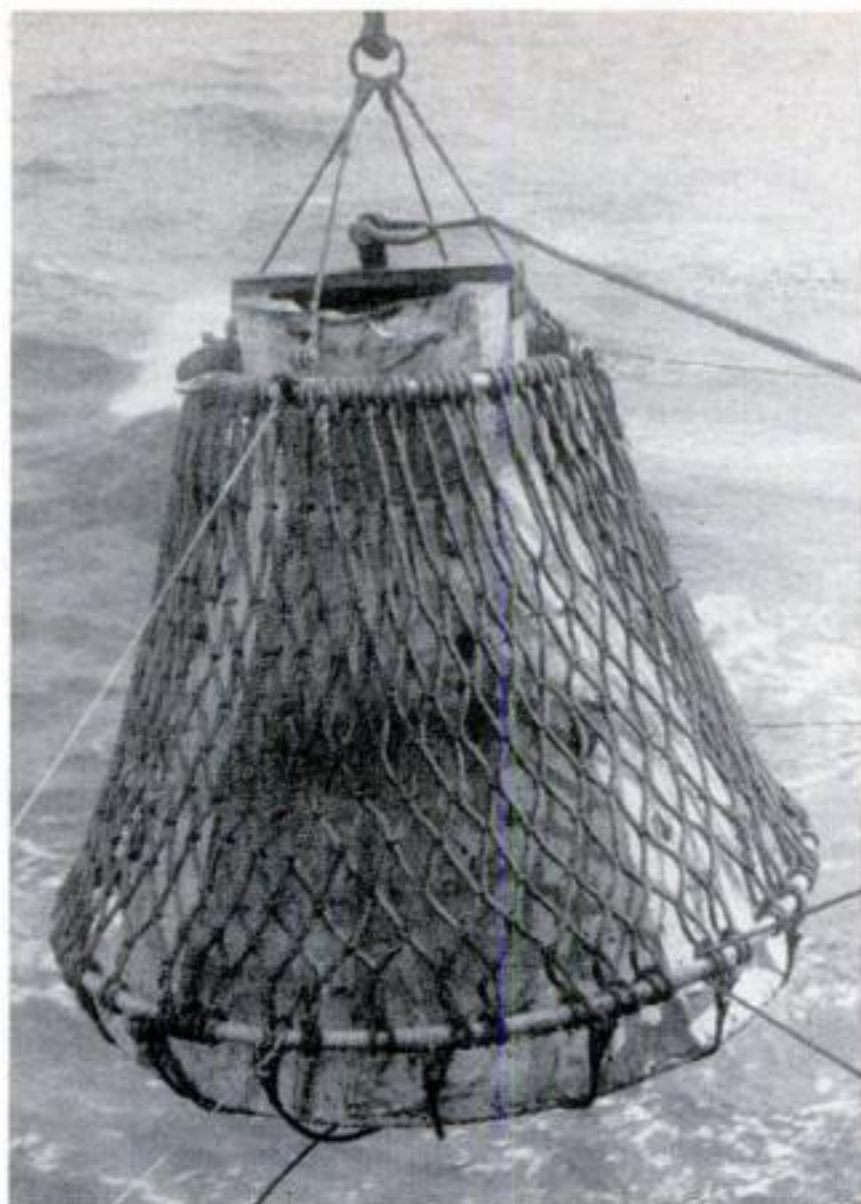
net was devised by a seaman—George J. Halter, chief boatswain's mate aboard the destroyer tender Shenandoah. It looks like a tea bag and is used like a fishing net. The basket was designed for use on



BABY BREATHER. This tiny resuscitator, the world's smallest, is used here on a parakeet. It was developed to help newborn babies who have trouble drawing their first breath. It admits oxygen through a pinhole in the thimble mask.

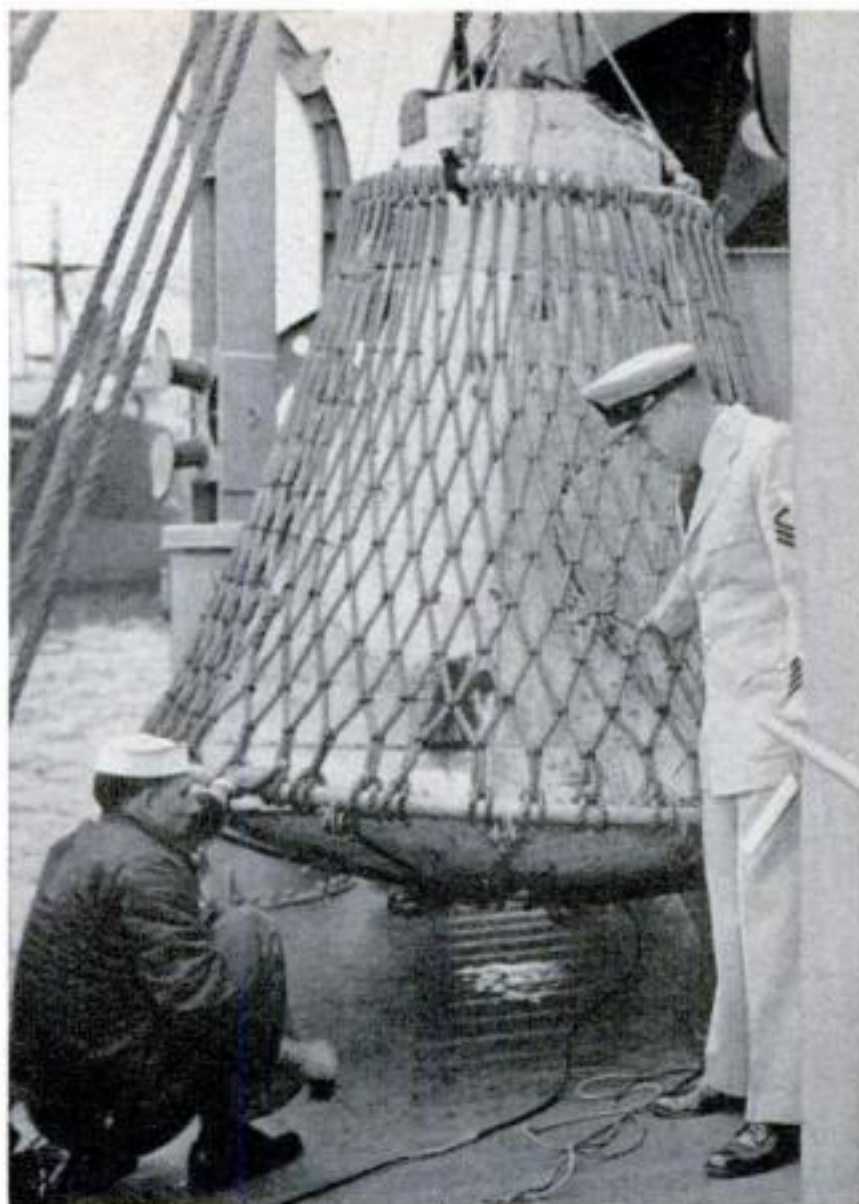


STORM FINDER. The 18-foot plastic ball above is intended to house a new radar with which the New York Weather Bureau hopes to locate distant storms. It is atop the 70-story RCA building—above interference from nearby skyscrapers.



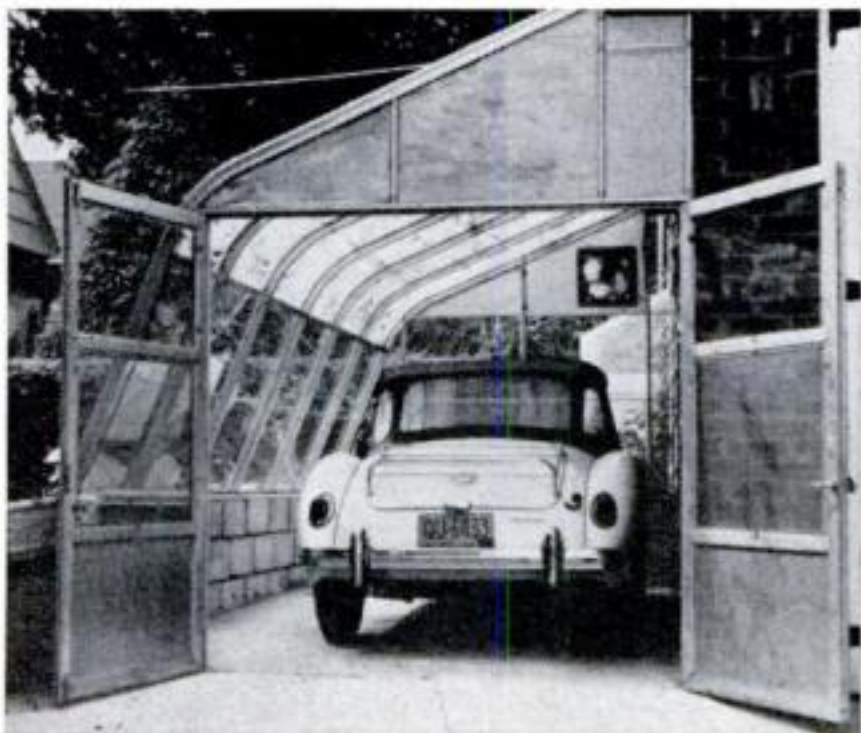
3. DRAWSTRING IS PULLED to close the bottom pendants tightly around the capsule. The captive object is then gently lifted from the water.

destroyers, but it is adaptable to any surface ship and may eventually be part of the equipment of all Navy ships. Be-



4. SAFELY ABOARD. The nose cone is brought to the deck of the patrol ship where it can be opened or taken to shore for detailed study.

sides recovering nose cones, it could be used for rescuing men overboard or picking up other objects from the sea.



DISPLAY CASE. When P. J. Amico, Flushing, N.Y., became the proud owner of an MG-A second car, he put a prefab aluminum-and-glass greenhouse on his garage. It not only protects the new machine, but also shows it off to neighbors.



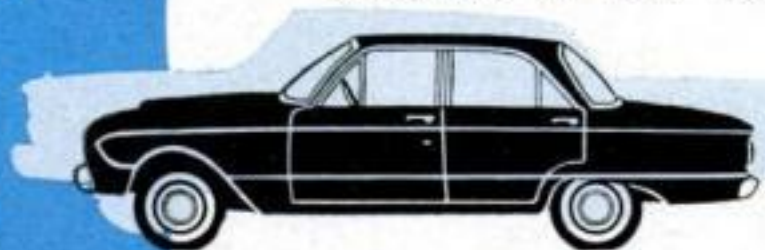
GUN MUZZLE. This striking view of a 90-mm. cannon mounted on a U.S.-made M-47 Patton tank shows the muzzle brake that reduces recoil when the gun is fired. It was taken during maneuvers of the Austrian army.

Battle of the NEW U.S. SMALL CARS

By Ken Fermoye
and Devon Francis

THIS month something new will appear on U. S. highways. Putting an end to two years of rumors and denials, Detroit's Big Three—Chrysler, Ford and General Motors—are introducing their smaller, "compact," six-cylinder cars.

On this page you can see how the new cars compare in size with the regular Plymouth, Ford and Chevrolet.



FALCON: 27" shorter than Ford

tinier engines than the bulk of Detroit cars have used in two decades. They're priced lower. Along with our Ramblers and Larks, they are America's answer to the influx of "little foreign cars."

The first to be announced are Chevrolet's Corvair and Ford's Falcon.



CORVAIR: 31" shorter than Chevrolet

The rumors were true. The new automobiles are shorter, narrower and lighter. They will go farther on a gallon of gas.

They are powered with tinier engines than the bulk of Detroit cars have used in two decades. They're priced lower. Along with our Ramblers and Larks, they are America's answer to the influx of "little foreign cars."

The Corvair sports an engine that's back where the trunk usually is. Nor is it an ordinary engine. It's made of aluminum and the cylinders lie flat, three on each side of the crankshaft. The only cast iron used is in the

cylinder liners, to absorb piston friction.

The Falcon is more conventional on three counts. The engine is made of cast iron, it stands up-and-down, and it's in front under the hood.

The third of the smaller cars is Chrysler's Valiant. It's a little bigger. It has more power. Its cast-iron engine is up front in traditional style, but is tilted rakishly to one side. Like the



VALIANT: 24" shorter than Plymouth

Corvair, it has aluminum intake pipes. Like the Falcon, it's conventional in construction. More details on the Valiant will appear next month.

In the following pages, POPULAR SCIENCE tells you all about these new cars:

- How they compare with other small cars.
- What they're like to drive.
- How sassy the engines are.
- How they're built.
- Their good points and their bad ones.

See foldout for X-ray view of two new small cars

CORVAIR

How the U.S.

Small Cars Compare



FALCON

In the table below, all the cars listed have six cylinders except the imports, which have four. Corvair, Falcon and Valiant specifications are for 1960, the others for '59 models. Measurements are in inches except where otherwise specified. "NA" means Not Announced at press time.

	OVERALL MILES PER GALLON (estimated)	LENGTH	WIDTH	HEIGHT	WHEELBASE	CURB WEIGHT (pounds)	HORSEPOWER	PISTON DISPLACEMENT (cu. in.)	HEAD ROOM		HIP ROOM		LEG ROOM	
									Front	Rear	Front	Rear	Front	Rear
Corvair	26	180	66.9	51.3	108	2,415	80	140	38.7	38	57.8	57.6	42.8	36.5
Falcon	26	181.1	70	54.5	109.5	2,396	85	144.3	33.9	32.8	57.1	57	43.3	39.4
Lark	21	175	69	57.5	108.5	2,745	90	169.6	35	33	59.5	59	44	41
Rambler	21	191.2	72.2	58	108	3,042	127	196	36	35	59.8	60.1	43	40
Valiant	24	184	70.1	54	106.5	n.a.	n.a.	171.1	33.8	33.6	57	56.9	44.4	38.9

How they compare with U. S. standard cars

Chevrolet	18	210.9	79.9	56	119	3,787	135	236	36.1	34.3	66.1	65.5	45	42.8
Ford	18	208	76.6	56	118	3,644	145	223	33.5	33.3	60.4	60.8	42.7	40.3
Plymouth	18	208.2	78	56.6	118	3,446	132	230	35.7	34.2	63	62.7	45.5	41.5

How they compare with typical imports

Ford Anglia	28	151.2	60.5	58.7	87	1,623	36	71.6	35.5	32.5	51	36	43	40
Opel Rekord	28	174.5	63.6	56.7	100	1,995	56	90.8	35	33.2	52.5	52.5	44	37
Renault Dauphine	34	155	60	56.7	89	1,395	32	51.54	34.5	32.5	50.7	50.3	40.5	37
Simca Aronde	28	162	61.2	57	96.2	2,053	48	78.7	34	34.5	51.5	52.5	42.5	42.5
Volkswagen	34	160	60.5	59	94.5	1,802	36	72.7	36	32	48	51.5	44.5	41

New U.S. Small Cars

What They're

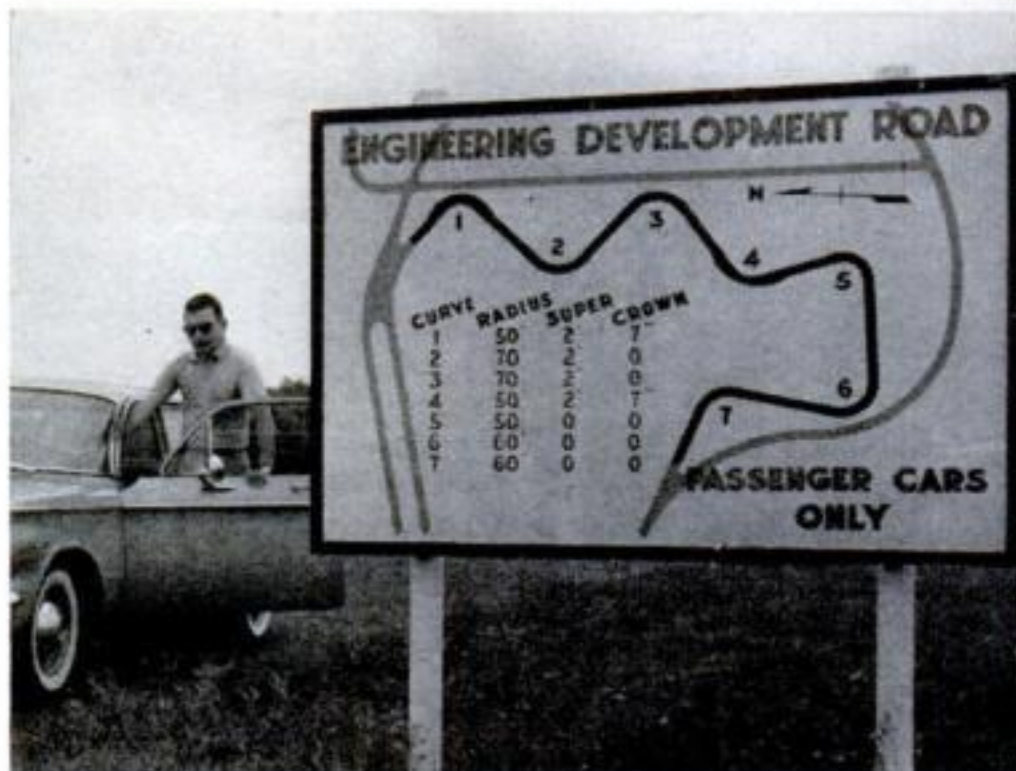
CORVAIR

THERE'S plenty of entrance room and you board easily. Inside, there are several inches more head room than in Chevy's swank Impala, and ample leg room for a six-footer. Pedal widths are adequate, but no more. Automatic-transmission jobs have a selector lever on the instrument panel; manual-shift cars have a floor-mounted lever.

The engine key-starts, and it idles smoothly. It sounds noisy to people standing nearby outside. Inside, thanks to liberal insulation, it isn't noisy.

Acceleration. For all-out getaway you make the low-to-second shift at 25 m.p.h., the second-to-high shift at 50. This gives you zero-to-60 in 17 or 18 seconds—better than most of the imports, far slower than recent big-engined Detroit iron.

Surprisingly, the automatic-transmission car clocks almost identical times.



PS DETROIT EDITOR Ken Fermoye gets aboard new Corvair at General Motors Proving Ground.

Both show good performance in passing-range acceleration and in hill-climbing ability. At 24 pounds per horsepower, Corvairs will not be sluggish highway hazards like some imports. Top speed is well above 80 m.p.h., and 65 to 70 is a comfortable cruising speed.

ENTRY is as easy as in full-size Fords, and maybe easier, since there's no dog-leg in the front pillar. The interior is surprisingly roomy, about the same as a 1957 Ford except for a couple of inches less interior width.

Performance. Both stick-shift and automatic versions use a steering-column lever. Getaway in the automatic feels a bit sluggish, and a full-bore zero-to-60 run clocks at a leisurely 22 seconds. Manual-shift Falcons are three to four seconds quicker. Top speed is in the 80s. You could drive the Falcon all day, and



ON FORD'S TEST TRACK at Dearborn, Fermoye whips a Falcon around a banked curve.

long trips would be no chore—but you would win few green-light drag races.

Ride and handling. On harsh surfaces the Falcon rides beautifully, with none

Like to Drive

Steering and handling. The steering is precise and light. No power steering is offered; none could rationally be wanted. The car goes exactly, not approximately, where you point it. Overall ratio is $23\frac{1}{2}:1$, with five turns from lock to lock.

Cornering is excellent. If you push the car through a hard turn you will find that oversteering—a tendency of the rear end to swing a car around on a turn—has been minimized. Some little oversteering is present, however. Pressed to the edge of a slide, the Corvair's rear end drifts out a bit, but stops as you ease off slightly on the wheel. Weight distribution—and handling characteristics—are the same whether the car is carrying just one or is fully loaded.

Rough-road ride. The wide-base 6.50-by-13 tires—running at 15 pounds in the front, 26 in the rear—combined with fully independent suspension, soak up the bumps very well. On bad surfaces you can hear the wheels pitter-pattering up and down, but little of the road shock reaches you. There is little pitch.

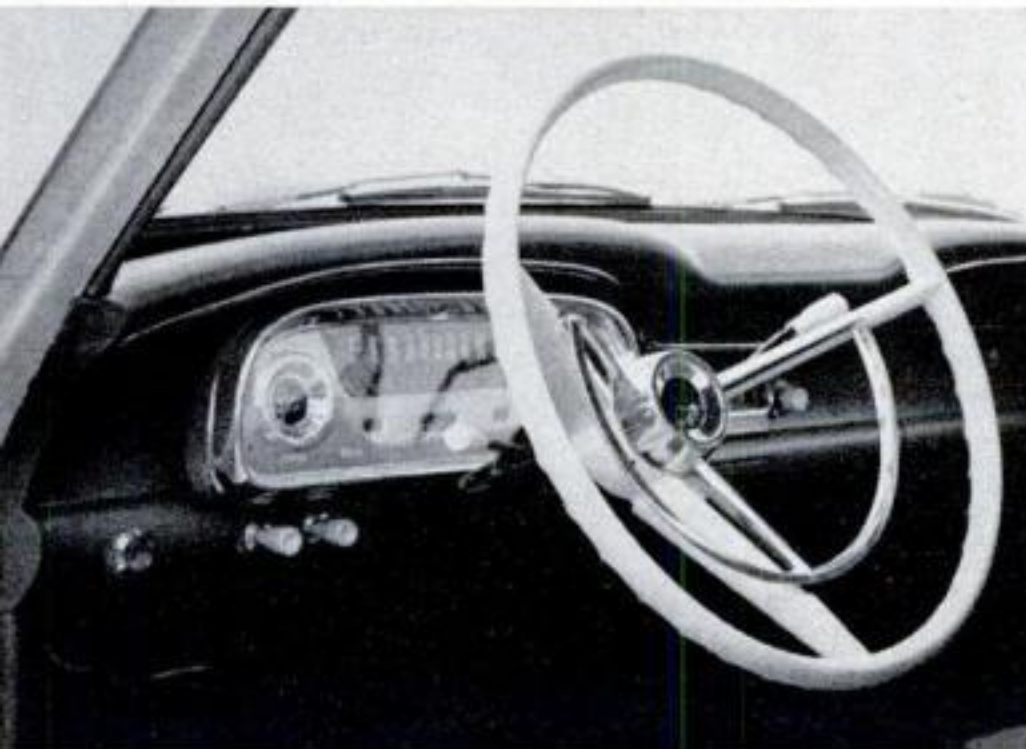
Brakes. Though the Corvair's front wheels support only 40 percent of the weight at rest, forward weight transfer during braking equalizes the work done by the nine-inch drums. On repeated hard stops, the car holds course and pulls down quickly.



CORVAIR'S REAR END drifts slightly as car corners hard, but there's little body sway.

of the rough, bouncy feel of many imports. It is a comfortable car. Even on tight turns, while not remotely a sports car, it sticks nicely in the corners. There is some body sway, although you'll find it

FALCON INSTRUMENT PANEL is simple and easy to read. Gearshift lever is mounted on column.



less than in plenty of U. S. big cars.

Compact though it is, the Falcon has a typical American-car feel. Its drivers won't have to make adjustments in their driving habits.

Steering is light, and no power assist is needed (or offered). The overall ratio is $27:1$. Thanks to the car's relatively small size and compact turning circle (37.7 feet), parking is a breeze. It takes a bit more than $4\frac{1}{2}$ turns of the steering wheel to turn the front wheels from full right to full left.

If you make a series of fast stops to check out the brakes, you'll be surprised at the lightness of the pedal pressure. They feel like power brakes, which they are not. Only a little brake fade was perceived after six or seven hard stops in succession.

What Makes

CORVAIR

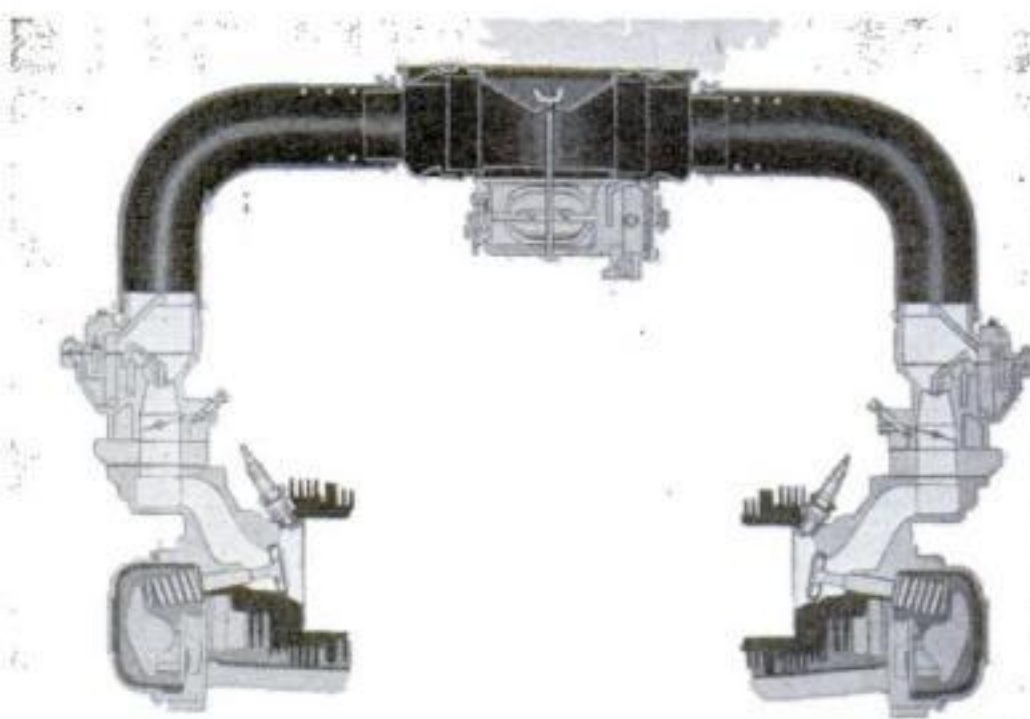
THE 80-horsepower Corvair engine has no block. Displacement is 140 cu. in., yet it weighs just 310 pounds—half the weight of big U. S. V-8s, and 40 pounds less than the 91-cu.-in. English MG engine.

A rear-mounted engine must be light to keep front/rear weight distribution in reasonable balance. Engineers figure the practical maximum on the rear wheels is 60 percent of total car weight.

Chevy kept within the limit by designing an air-cooled engine and using lots of aluminum.

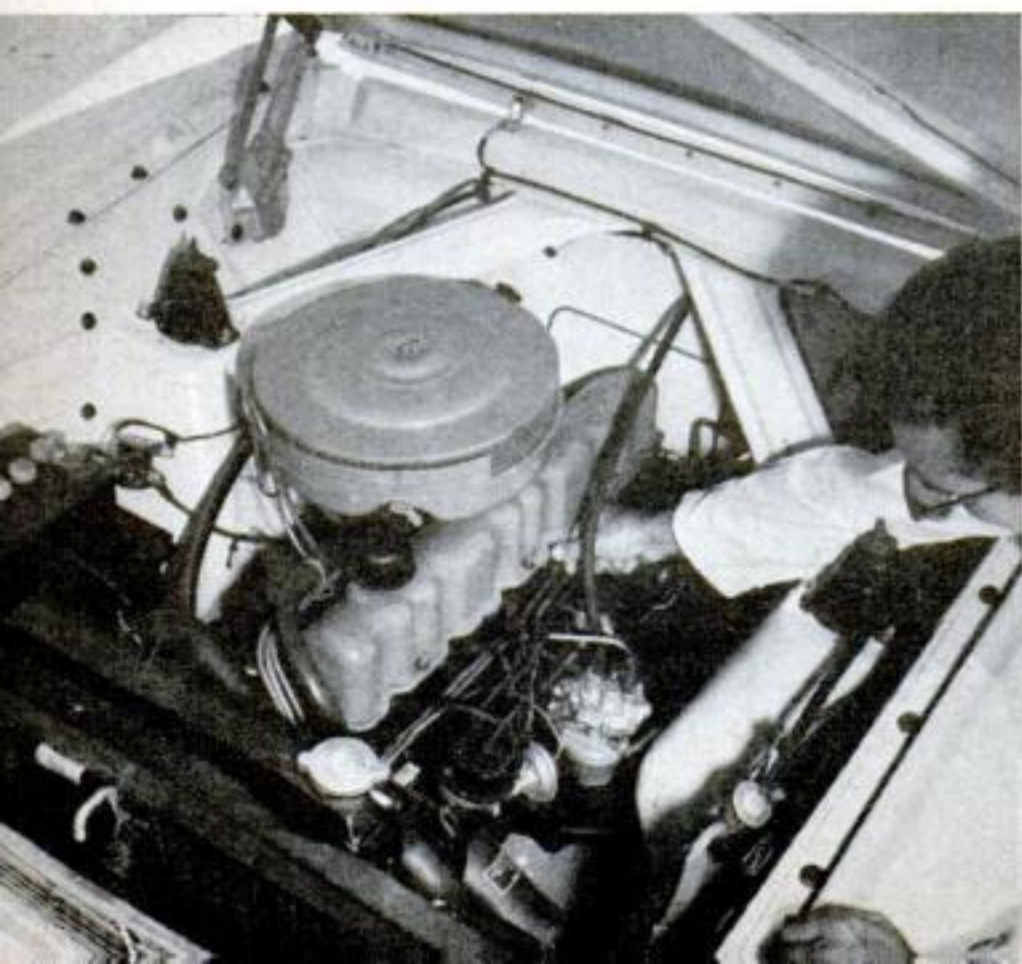
It's an opposed-cylinder engine. Visualize a V engine with the angle between cylinder banks increased to 180 degrees. This compact layout has long been used in light plane engines, some foreign cars.

The opposed, or "flat," engine has the virtue of inherent balance. Its forged-steel crankshaft has six throws arranged in pairs. Each crankpin is 180 degrees from the other member of its pair and the pairs are spaced 60 degrees apart.



TWO CARBURETORS supply fuel to the Corvair. Each feeds three of the engine's cylinders.

FALCON



IN CONTRAST to the Corvair, the Falcon six is water-cooled and has a cast-iron block. Despite that, dry weight of the 144-cu.-in. engine is just 345½ pounds. Modern foundry techniques get the credit for this accomplishment.

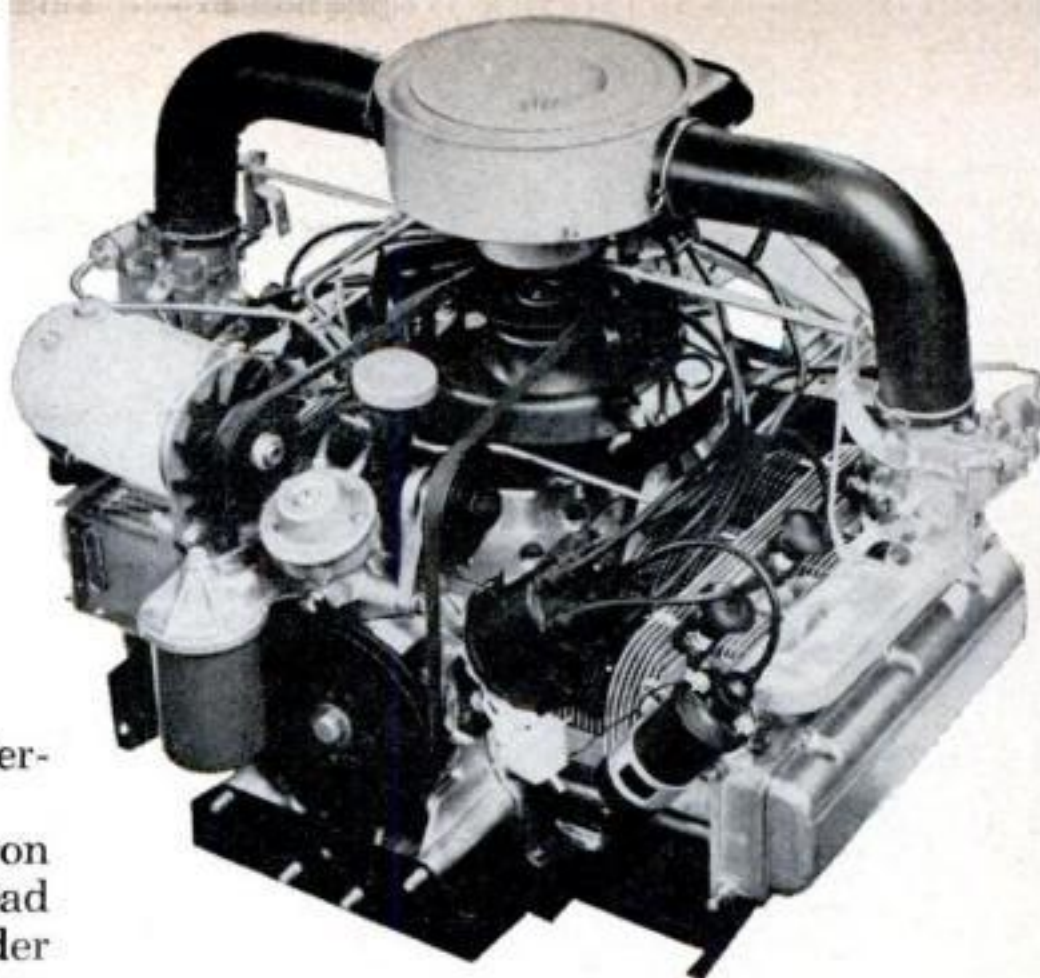
The head and intake manifold are cast in one piece that is stronger and lighter than separate castings would be. This eliminates the big opening left in the side of most in-line engine blocks to make casting them easier. It also eliminates the stamped sheet-metal plates used to cover these openings. Those plates vibrated, leaked noise and oil, and weakened the block itself.

Short stroke. The 85-horsepower Falcon engine is very much oversquare. Bore is 3½ inches, stroke just 2½ inches.

EASY SERVICING is emphasized in the Falcon engine. Its components are easy to get at.

'Em Go

SIGN OF THINGS TO COME? Performance of Corvair engine, made with liberal quantities of aluminum, is being watched by other car makers. Most are planning aluminum engines.



Thus the shaft needs no heavy counterweights.

Each cylinder is simply a cast-iron barrel clamped between its cylinder head and the aluminum crankcase. Cylinder bore is $3\frac{3}{8}$ inches, stroke $2\frac{3}{5}$ inches. Compression ratio is a mild 8:1.

The crankcase is the structural backbone of the power plant. Roughly rectangular, it's cast in two halves and bolted together.

The camshaft is located below the crankshaft and rides in bearing surfaces machined out of the aluminum crankcase itself. It has only three exhaust-valve lobes. Each is twice the width of intake lobes and actuates push rods for two exhaust valves. Valves are in the head, and valve lifters are hydraulic.

Look, no shaft: The Corvair's engine, transmission and differential are mounted in the chassis as a unit. The transmission is farthest forward and the engine is at back, with the differential sandwiched between.

Both manual and automatic transmissions have cast-aluminum cases to keep weight down. Standard rear-axle ratio for both transmissions is 3.55:1; an optional 3.89:1 ratio is available for stick shifts.

This reduces friction, but at the expense of low-end torque.

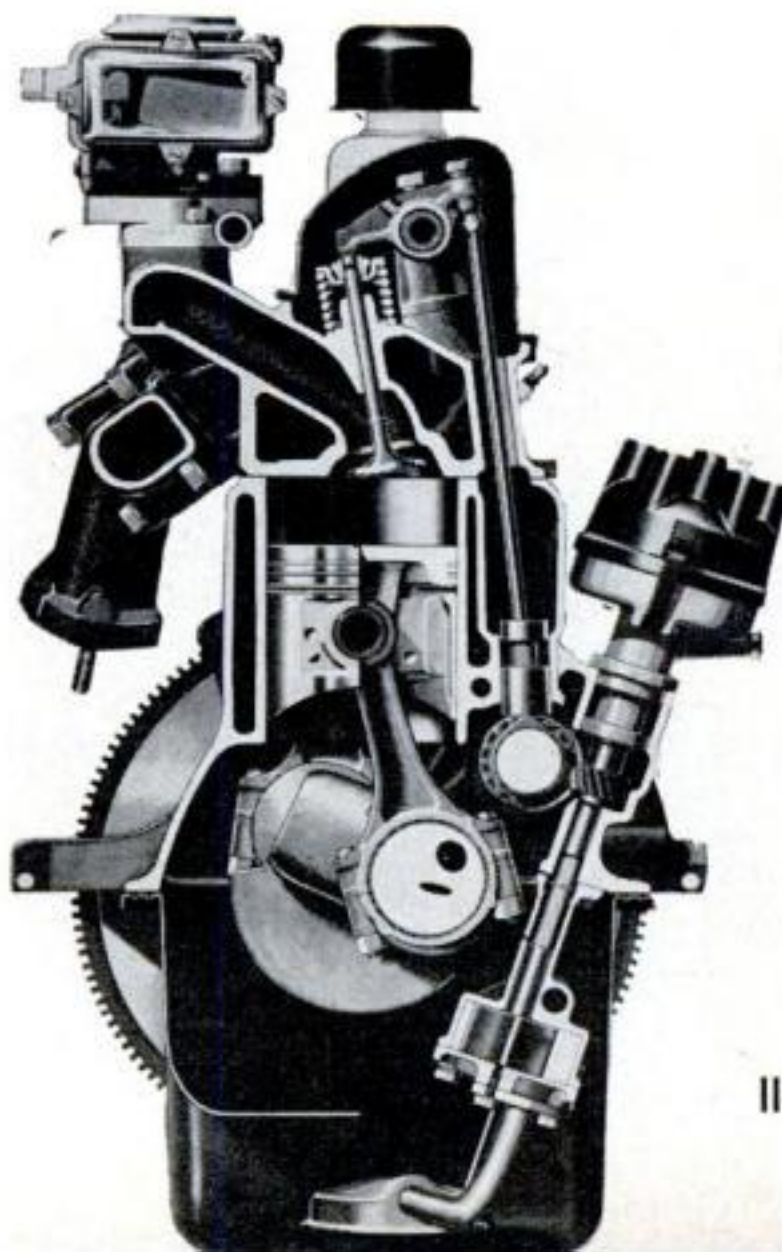
One single-barrel carburetor feeds all cylinders through six individual ports. Overhead valves are worked by pushrods and have mechanical, not hydraulic, valve lifters.

The Falcon block is just eight inches high. It does not extend down below the crankshaft centerline as does the four-inch deeper block of Ford's "I-Beam" six.

A three-speed stick shift with synchromesh on second and high gears is standard. Overdrive is not offered, but two-speed Fordomatic is available as an option. Rear-axle ratio, with either manual or automatic transmission, is 3.10:1—a selection obviously made for economy, not performance.

REFINEMENT, NOT REVOLUTION is the keynote of the Falcon valve-in-head six-cylinder engine.

CONTINUED



New U. S. Small Cars

How They're

CORVAIR

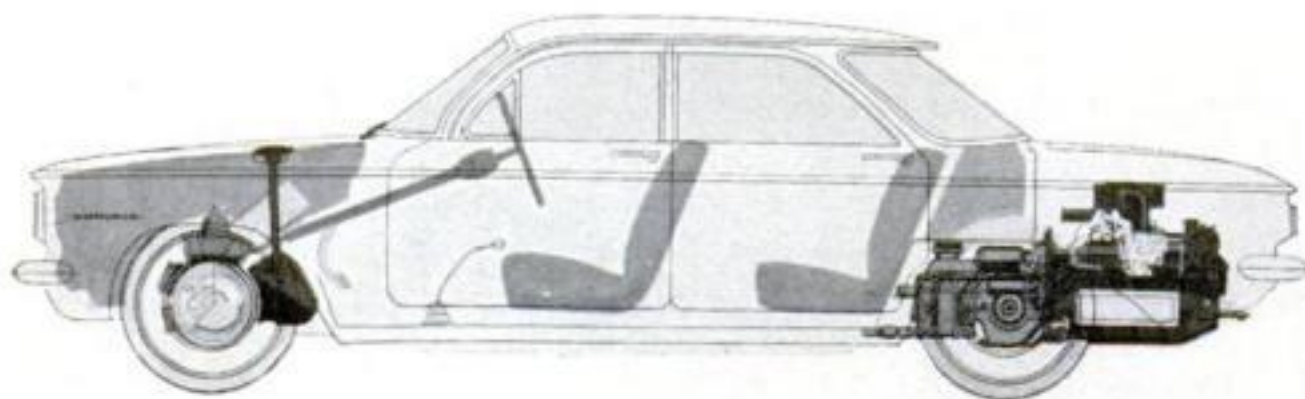
THE Corvair is the first important U. S. car to offer independently sprung rear wheels.

Its rear suspension is a "swing-axle" type. Separate axle shafts run from the differential to each wheel, and each half-shaft is driven individually through U joints. Each axle, and the wheel attached

to it, is thus free to swing up and down independently.

Unsprung weight cut. This makes for good riding comfort. So does the fact that the differential and final-drive gearcase are rigidly mounted to the sprung mass of the car. This big hunk of metal doesn't bounce up and down with the wheels, accentuating every road shock.

The Corvair's body is carried on four coil springs. With the engine at back, there is no need for a drive tunnel. There is just a small floor hump for engine and transmission controls.



PROFILE VIEW shows that head room, leg room aren't skimpy in the rear-engined Corvair. Despite car's low height, ground clearance is six inches, same as standard Chevy's.

EXCEPT for its unitized body, design of the Falcon is conventional. Its front wheels are suspended independently, by coil springs. Semi-elliptical leaf springs are used at the rear with the usual solid axle.

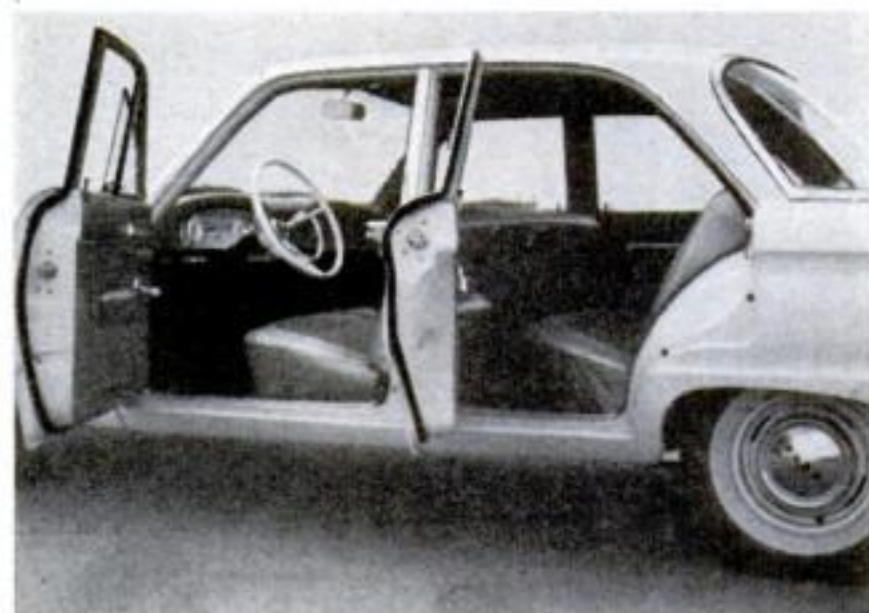
The front suspension is set up so that it resists nosedive during severe braking. The rear springs are mounted asymmetrically, with the axle located forward of the center point, to reduce the tendency of the springs to "wind up" when the car is accelerated.

The frameless body has rocker panels and other underbody box sections made of galvanized steel to prevent rust.

All fenders bolt on, so that replace-

ment is simple and relatively inexpensive.

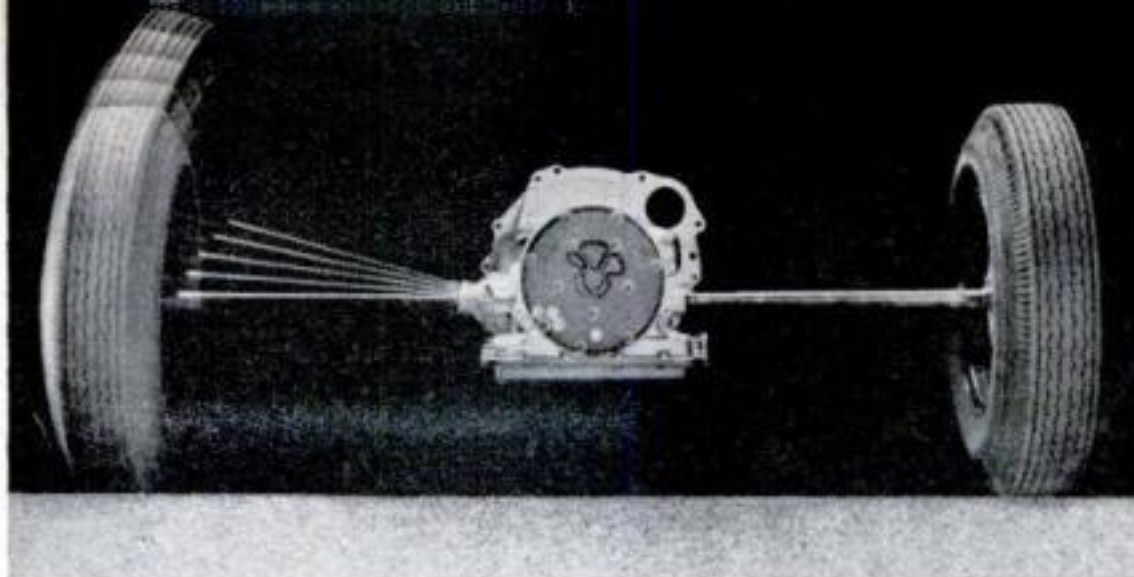
The roof shape, with its two-directional crown and short length, has permitted the elimination of roof supports. Result: a low roof line with no sacrifice in head room.



FALCON IS COMPACT, but it isn't tiny. Big door openings make getting into the car easy.

BUILDING

CORVAIR REAR WHEELS are each independently sprung, move up and down freely.

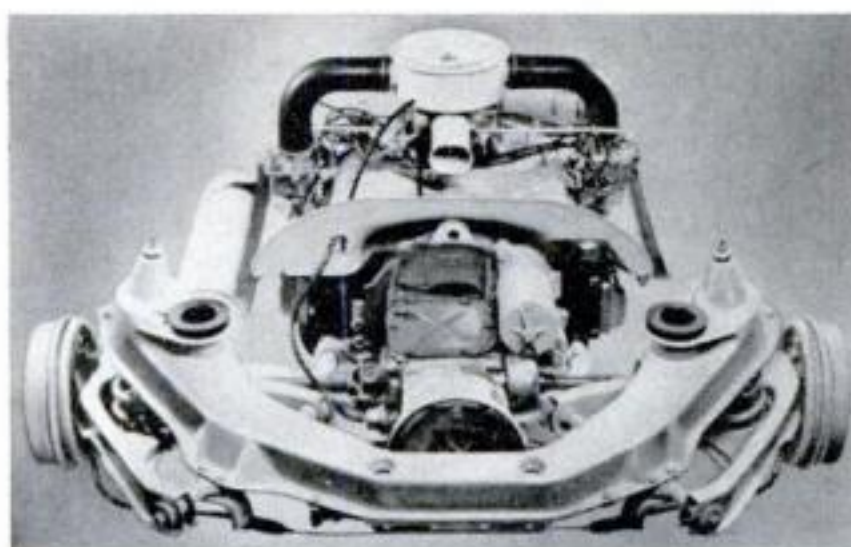


Unit body. The Corvair body is fully unitized and frameless. But unitized cars are highly vulnerable to corrosion. If one panel is weakened by rust the entire structure is weakened. Chevy is guarding against this by coating principal underbody structures with a high-zinc-content material prior to assembly, then painting all undersurfaces after assembly.

The Corvair passenger compartment is quite spacious, considering its compact size. Three average adults can be seated front and rear with a little squeezing.

Baggage space is tight. The front storage compartment has a total capacity of $9 \frac{4}{5}$ cubic feet, meager in comparison with the cavernous trunks Detroit usually provides. Its shape, and the way the spare tire is stowed, further reduce its usefulness. A convenient storage well

behind the rear seat adds an additional $4 \frac{1}{2}$ cubic feet. And an optional folding rear seat provides, when folded down, a flat-floored cargo area of $10 \frac{2}{5}$ cubic feet inside the car.



COMPACT: Engine, rear suspension and drive train of the Corvair are all in one unit.



LEAF SPRINGS, angled shock absorbers like those in bigger Fords are used in Falcon rear suspension, shown at right. Tires are low-profile 6.00 by 13.

STABILIZING STRUT at left looks like torsion bar, actually forms, with the stamped suspension arm, lower "A" frame of front suspension.



Good trunk space. The Falcon's trunk has a capacity of 24.5 cubic feet, more than double the volume of the Corvair's front trunk and about 20 percent more than the average of the most popular foreign cars. It will hold enough luggage to satisfy two-week vacation needs for the average family.

Small 6.00-by-13 tires require less wheel-housing space than larger tires used on big cars, leaving more room in the passenger compartment and up front in the engine room. They require a smaller turning radius, too. They are the low-profile tubeless type, and recommended pressure is 24 p.s.i. front and rear.

New U.S. Small Cars

What's Good...

CORVAIR

IT HANDLES nicely. Both the manual and automatic transmissions are smooth. The car keeps its feet in hard turns.

The traction is outstanding.

The entrance room is splendid. So is the head room. Front doors have no knee-cracking dog-legs.

The thinned-down doors are solid.

The floor is almost flat.

That fold-down rear seat will delight the shopping housewife.

There's no grille to collect bugs, no radiator demanding antifreeze.

The asbestos-wrapped muffler, close to the engine, is kept warm and dry. This should prevent rust.

The permanent, cleanable air filter is a blessing.

The passenger-compartment heating unit provides incredibly fast warmth.

FALCON

THE engine is reassuringly familiar. For cast iron, its weight is low.

The suspension's anti-dive is splendid.

The right hand is accustomed to the gearshift-lever location.

The windshield vision is superb.

The seat heights are comfortable.

Those parallel wipers are a boon.

The styling probably will be more acceptable to the Detroit-oriented buyer.

Hooray for optional dual headlamps.

For the car's size, there is ample room for luggage in the trunk.

The bolt-on fenders should be inexpensive to replace.

Most of the servicing items, such as the oil cartridge, are standard size.

The wiring system is simple to service.

That galvanized steel in the structural members shouldn't rust out.



First Details

BACKSTAGE, waiting to make its official bow this month, is a third Big Three small car, Chrysler's Valiant. Here is a lift of the curtain for an advance peek at it.

Its styling is more exotic than that of Corvair or Falcon. It has a subtle continental flavor. Grille and hood are reminiscent of the Chrysler 300E. An embossed wheel design is stamped in the deck lid, à la Plymouth and Imperial.

There are no fins darting skyward. Rear-fender crowns wrap over at the sides. The rear deck slopes off sharply from the rear window, giving the Valiant a semi-fastback appearance. Roof is thin and flat.

Under the sloping hood is a new water-cooled in-line six, tilted 30 degrees from vertical to the right. This accounts for the low hood. It also allows grouping of

the engine accessories to the left of the block. Result is a very compact power plant just slightly longer overall than the bare block.

Transmissions are tilted 30 degrees to the left, again to help keep height down and passenger room at the maximum. A three-speed manual transmission with shift lever floor-mounted is standard; three-speed automatic drive is optional. Unlike Falcon and Corvair, power steering and brakes are also offered.

Generators are a new alternator type, which keep charging even at idle.

Six intake and six exhaust ports—many in-line sixes have just three or four—let the engine breathe deeply. Long-branch intake manifolds have passages of nearly equal length running from the single-barrel carburetor to each cylinder. This means equal fuel distribution, uni-

and Not So Good

CORVAIR

Is THAT slight tendency toward oversteering absolutely inevitable?

The driver has to scrunch around a bit to reach the pedals.

Tire pressures are critical for good handling.

The transmission-mounted gearshift lever is an annoyance to the middle passenger in the front seat.

This is a car you will have to learn to drive—that heavy rear end may tend to break loose faster in turns on ice.

Why didn't they make those valve covers easier to open?

That huge rear window spoils the otherwise fine styling lines of the car.

The engine fan belt, busily turning four corners, may breed trouble.

Isn't that rear storage well, if piled high with stuff, a collision hazard?

FALCON

Tsk, tsk! With the horsepower so modest, let's synchronize that low gear.

The steering is overslow. More than 4.5 turns lock-to-lock is ridiculous with that light front end.

Good low-end torque has been sacrificed to a questionable speed advantage.

The axle ratio at 3.10:1 is too low. It should be 3.31. Fuel economy around town wouldn't be affected, and at high speed it wouldn't cost one m.p.g.

Those 13-inch tires will wear faster.

Bore and stroke, while affording low friction, give poor thermal efficiency.

Must an "economy" car offer that long list of options—at extra cost?

Why aren't the rear cushions, like the front ones, foam-filled for comfort?

That ribless roof, plus thin pillars, might be a hazard in a roll-over.

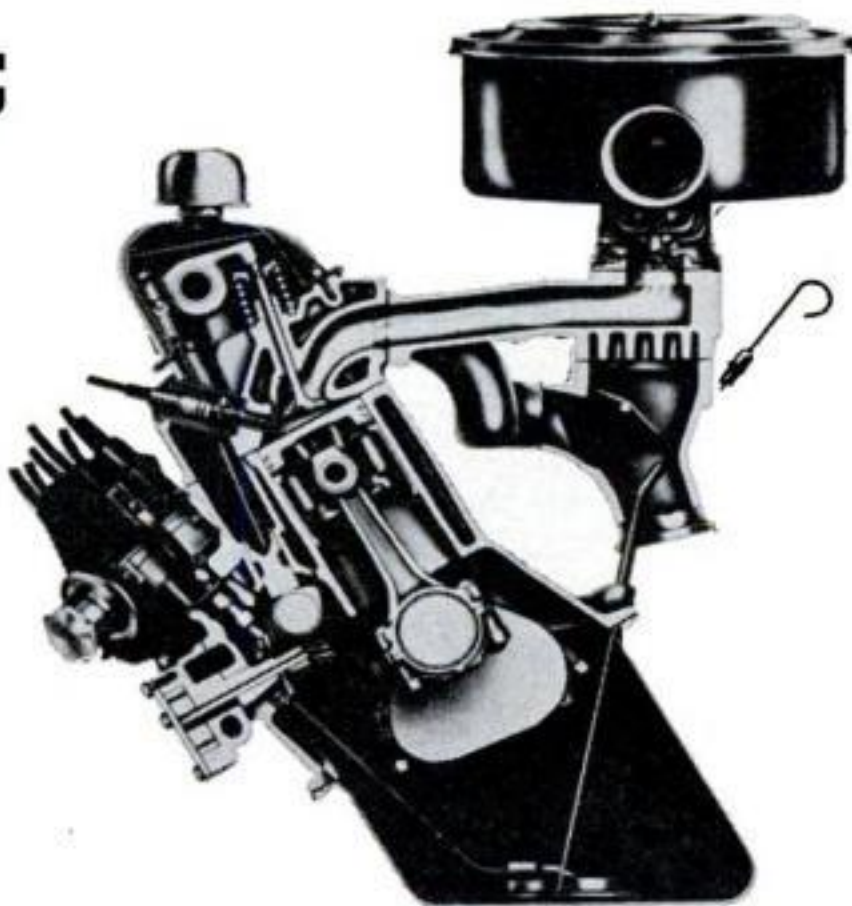
on Valiant

form power impulses for smooth operation and high efficiency.

Engine displacement is about 170 cu. in. Stroke will be slightly greater than bore to furnish good low-speed torque.

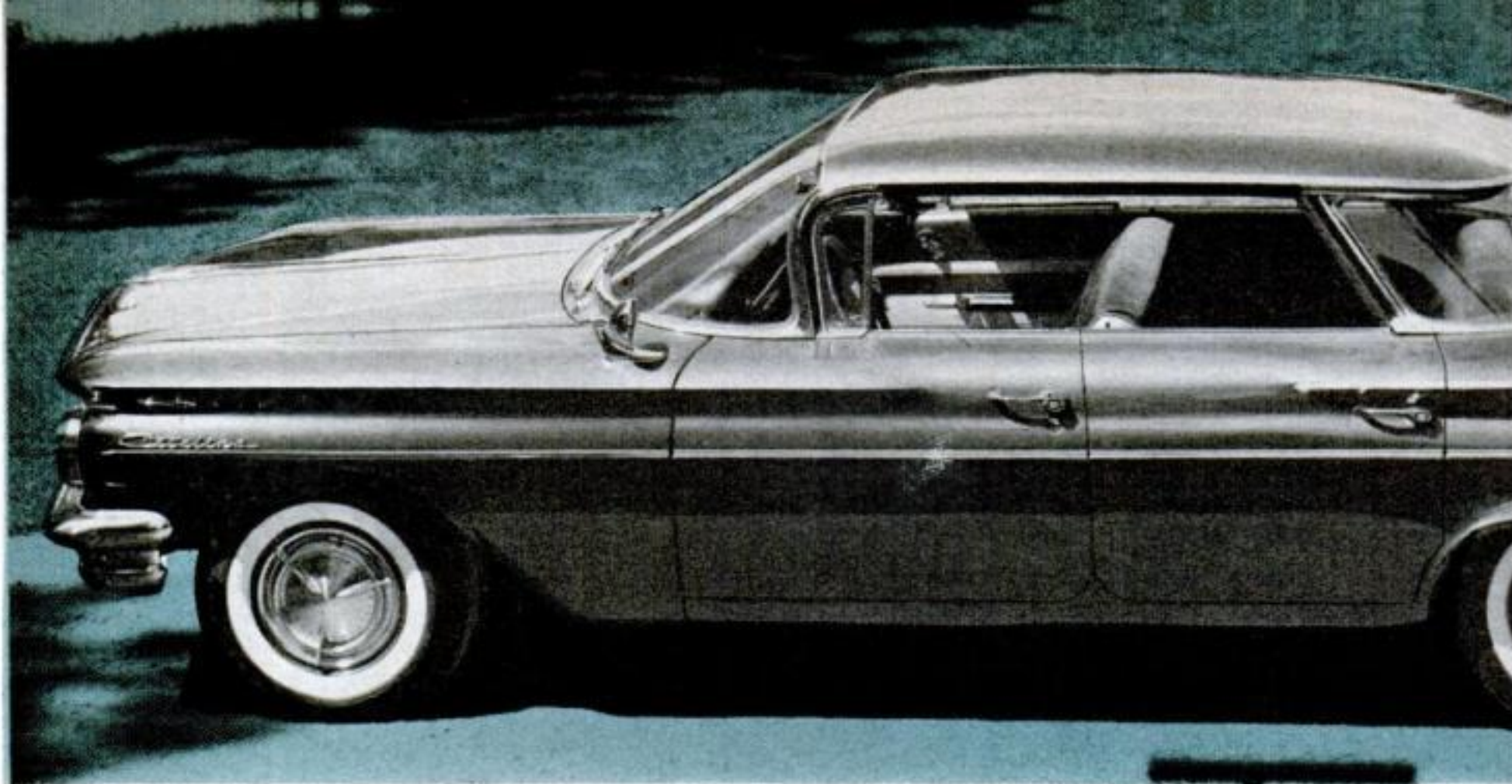
Performance will be "between our 1959 Plymouth L-head six and standard V-8 models," according to company engineers. That should mean acceleration from zero to 60 m.p.h. in about 16 seconds, cruising speed in the 70-75 m.p.h. range, and maximum speed of about 90 m.p.h. Fuel economy target is gas mileage falling between Volkswagen and Rambler Six.

Wheelbase will be the shortest of U. S. compact models, 106½ inches. Overall length, 184 inches, is greater than Falcon or Corvair. Height is 54 inches; width, 70.1 inches. Valiant station wagons will have the same dimensions.



CUTAWAY VIEW OF VALIANT ENGINE shows how the new in-line six is tilted 30 degrees from vertical. This keeps engine height low. It also permits the use of long intake manifold pipes—which give mild supercharging effect and help even out the fuel distribution.

For details on some of 1960's big cars, see the following pages



Pontiac for 1960:

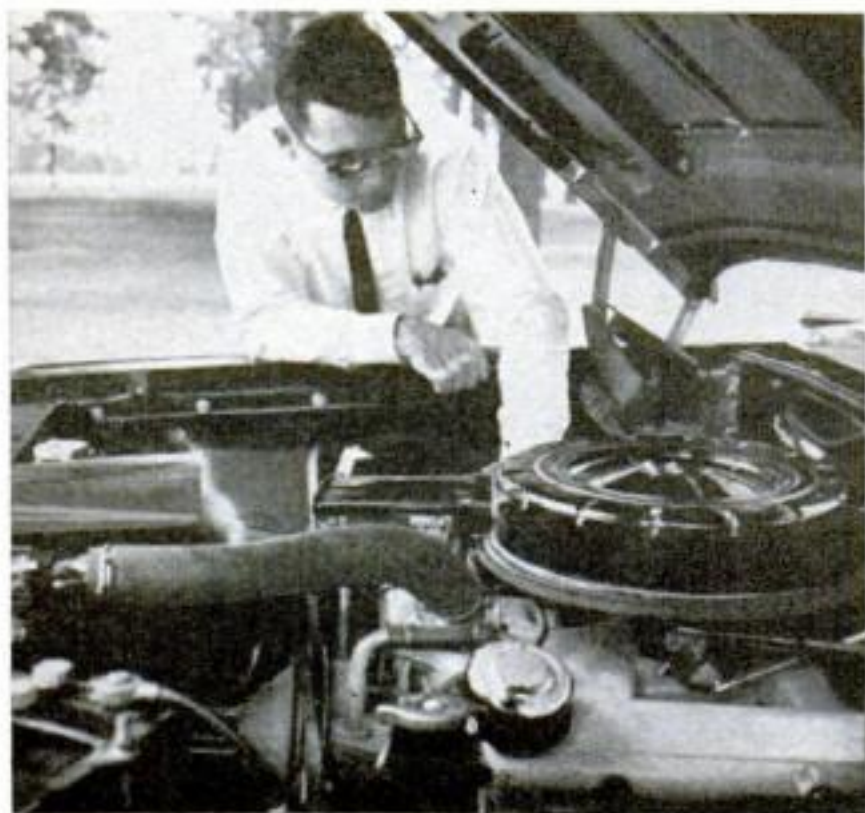
Better rear suspensions boost stability of wide-tread chassis. Some V-8s have more power

THE addition of two- and four-door hardtops in the new Ventura series brings to 16 the number of Pontiac models for 1960.

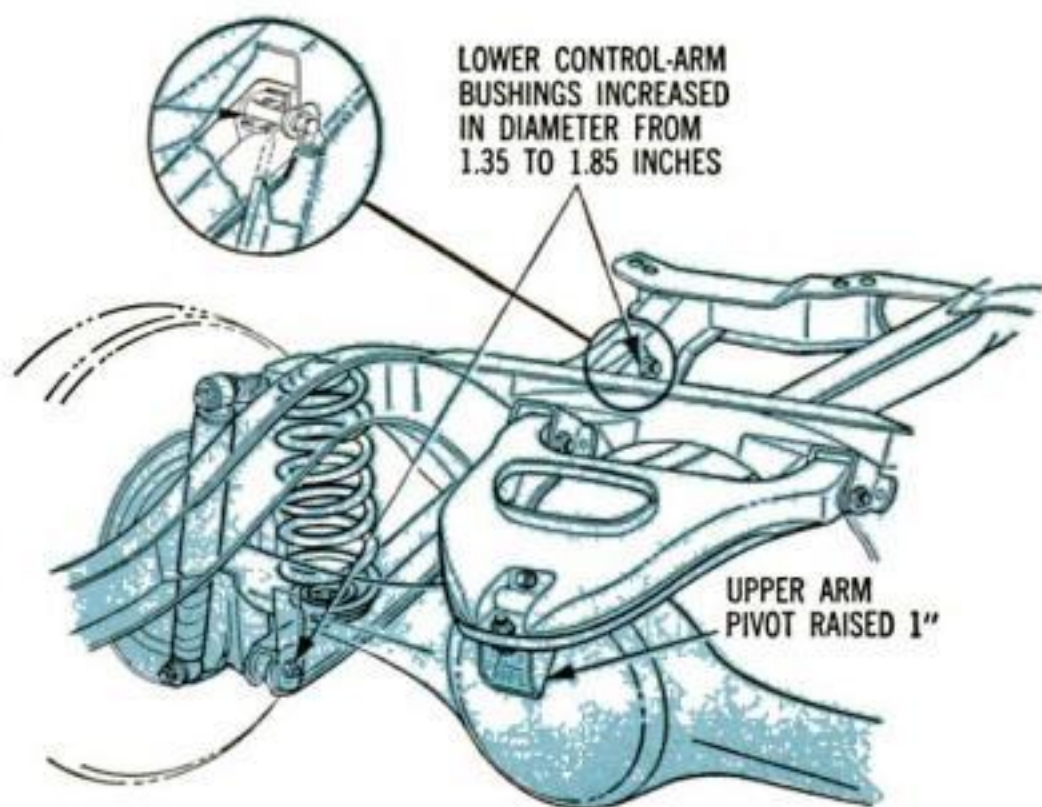
All have the "Wide-Track" chassis that Pontiac first introduced last fall—but with several improvements.

The upper control arm of the three-point rear suspension has been raised an inch (see drawing below). This raises the roll center, placing it closer to the center of gravity. Resistance to body sway and lean, already good because of the wide tread (63.7 inches front, 64 inches rear), is improved.

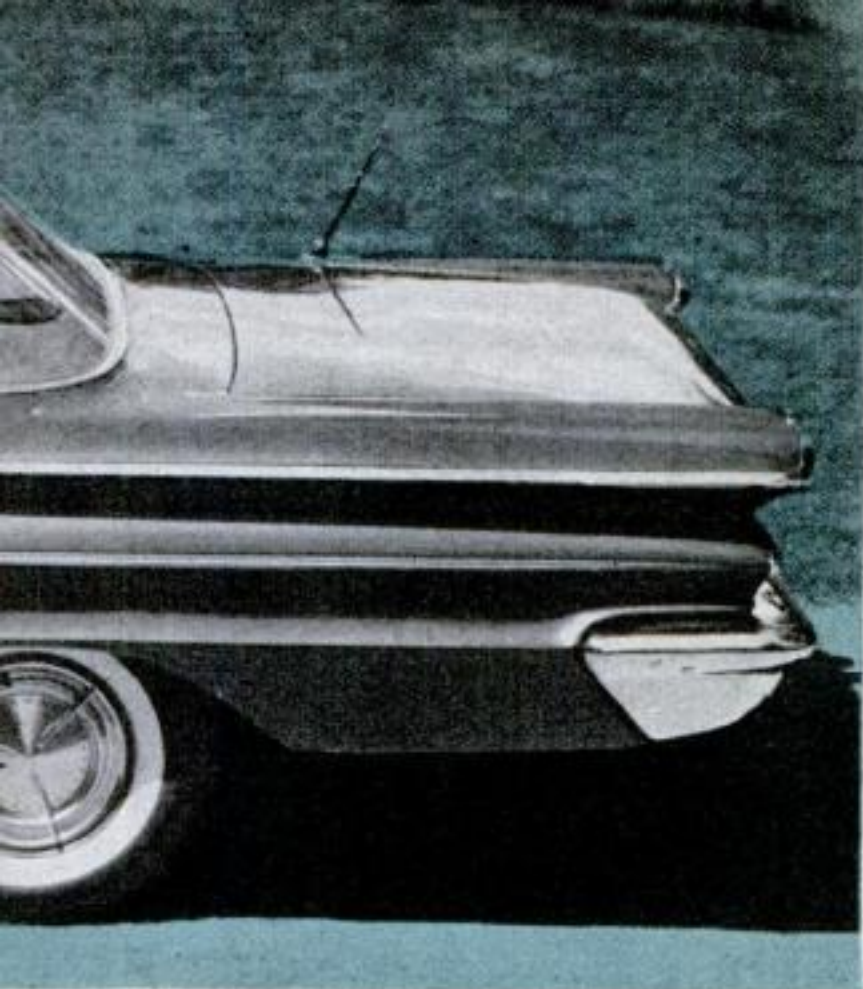
Shock absorbers are new. They have nylon-sleeved control pistons and use a variable-viscosity fluid for more uniform rebound control at varying temperatures.



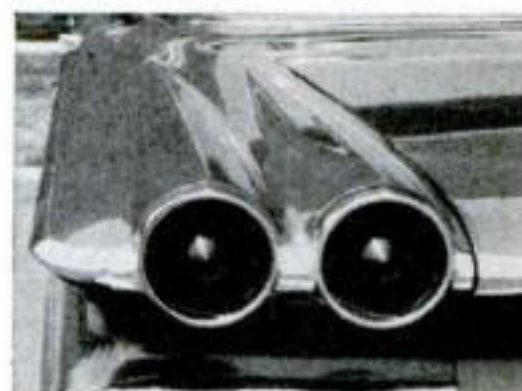
POPULAR ECONOMY V-8 with 8.6:1 compression ratio, two-barrel carburetor is continued as an option. A 2.69 axle ratio is offered.



LARGER RUBBER BUSHINGS are now used at pivot points of the rear-suspension lower-control arm to provide a smoother and quieter ride.



NEW VENTURA SERIES is priced just above Catalina hardtops (left). Grille (above) is reminiscent of classic Cord. Twin cones replace 1959's Vee fins atop each rear fender.



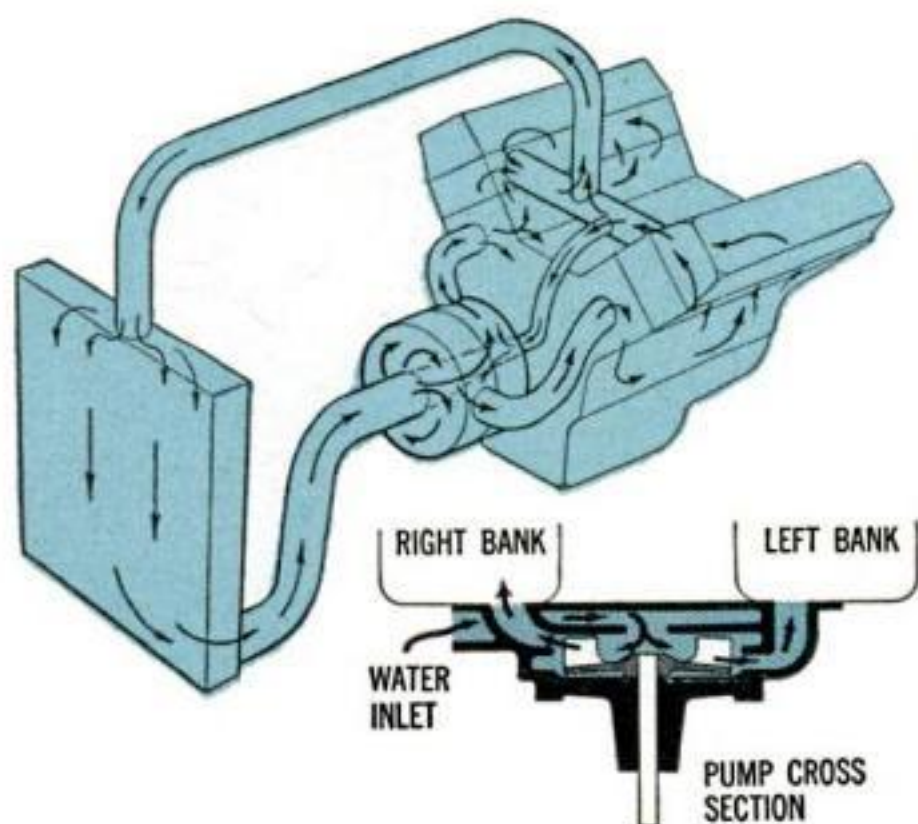
Economy Plus Style

A wide range of engine choices, all based on the same 389-cubic-inch block, is again offered. You can get two-barrel carburetors. Compression ratios and horsepower range from 8.6:1 and 215, for so-called "economy V-8s," to 10.75:1 and 318, for the hottest V-8.

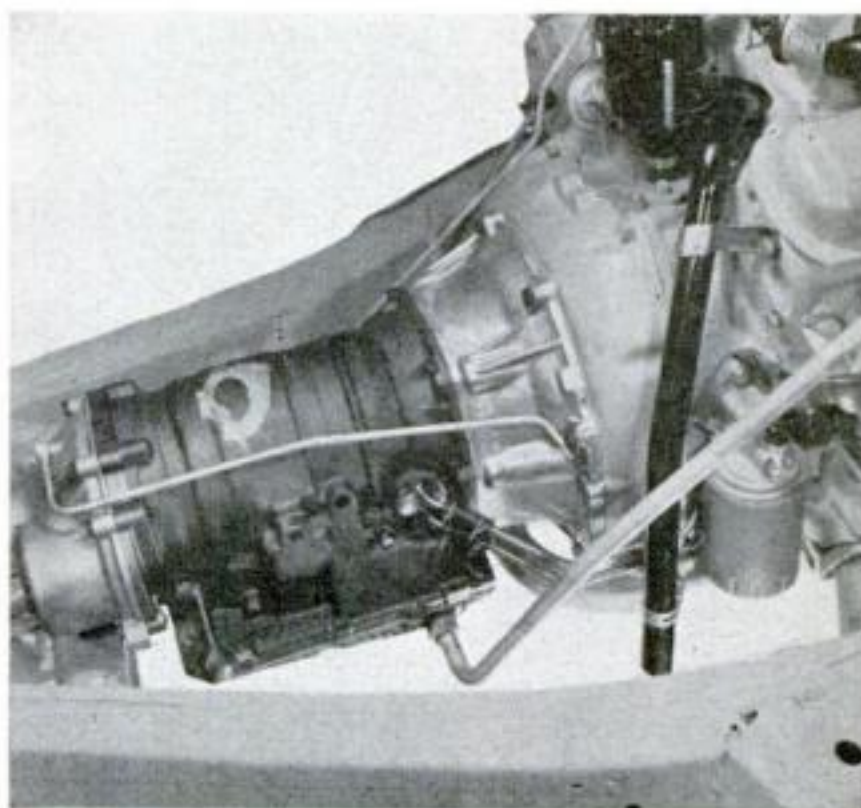
You can use regular gas in the former, and probably will need super-premium fuel for the latter. In between come engines of varying power ratings with 10.25:1 compression that want "plain"

premium gas. Notched pistons provide adequate valve clearance in the higher compression engines.

By permitting a smaller drive tunnel, the redesigned Hydra-Matic increases passenger space by 444 cubic inches—a figure that sounds more impressive than it is. The hump is an inch lower, two inches narrower. Of equal practical value is an increase of more than an inch in the distance from steering wheel to seat cushion, giving the driver more clearance.



NEW DIVIDED-CHAMBER WATER PUMP distributes coolant equally to both cylinder banks. This helps to prevent hot spots in the engine.



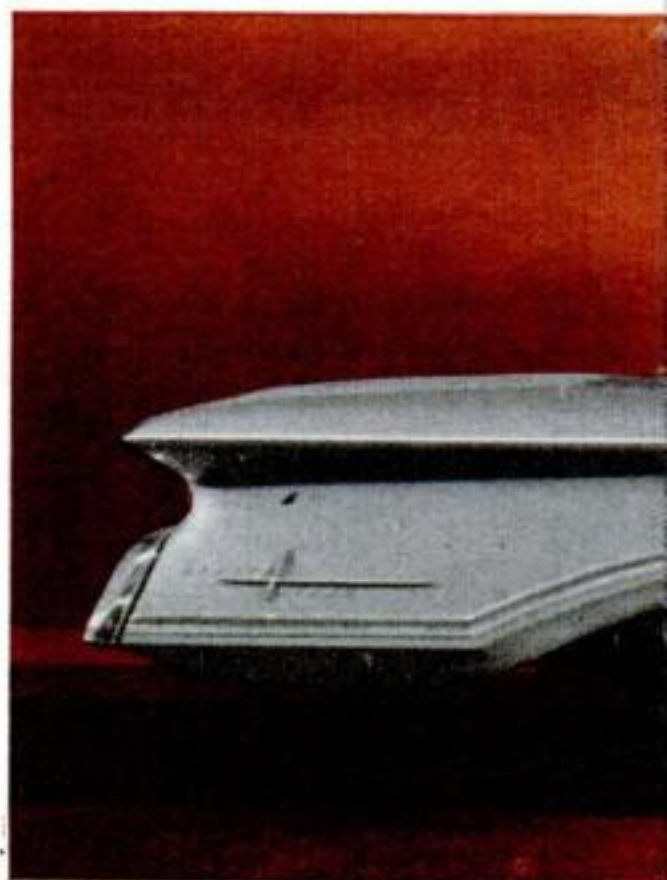
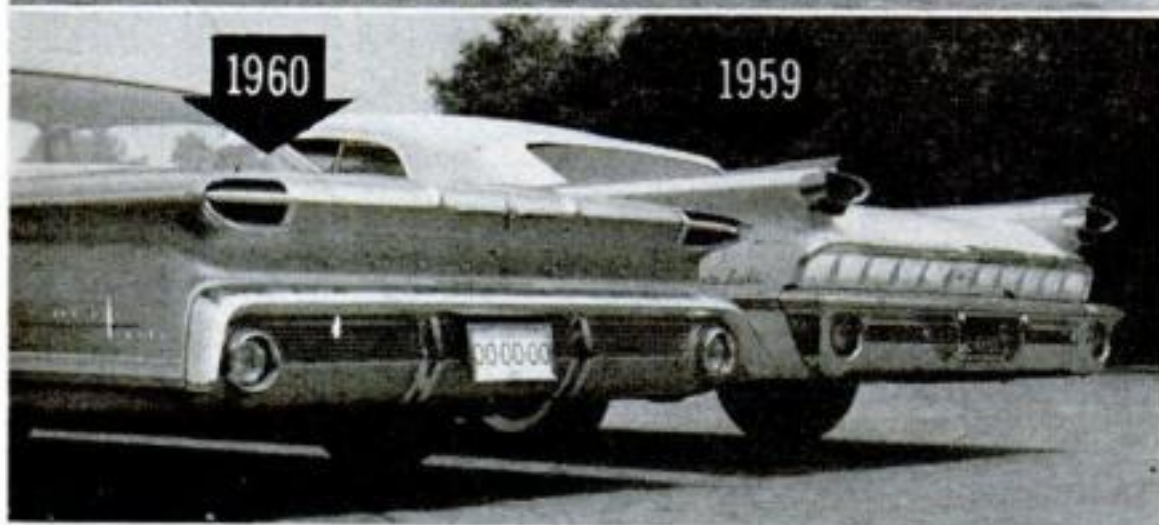
REDESIGNED HYDRA-MATIC is smaller, lighter than past models. Linkage is protected from ice and gravel by a splash shield (not shown).

CONTINUED 123

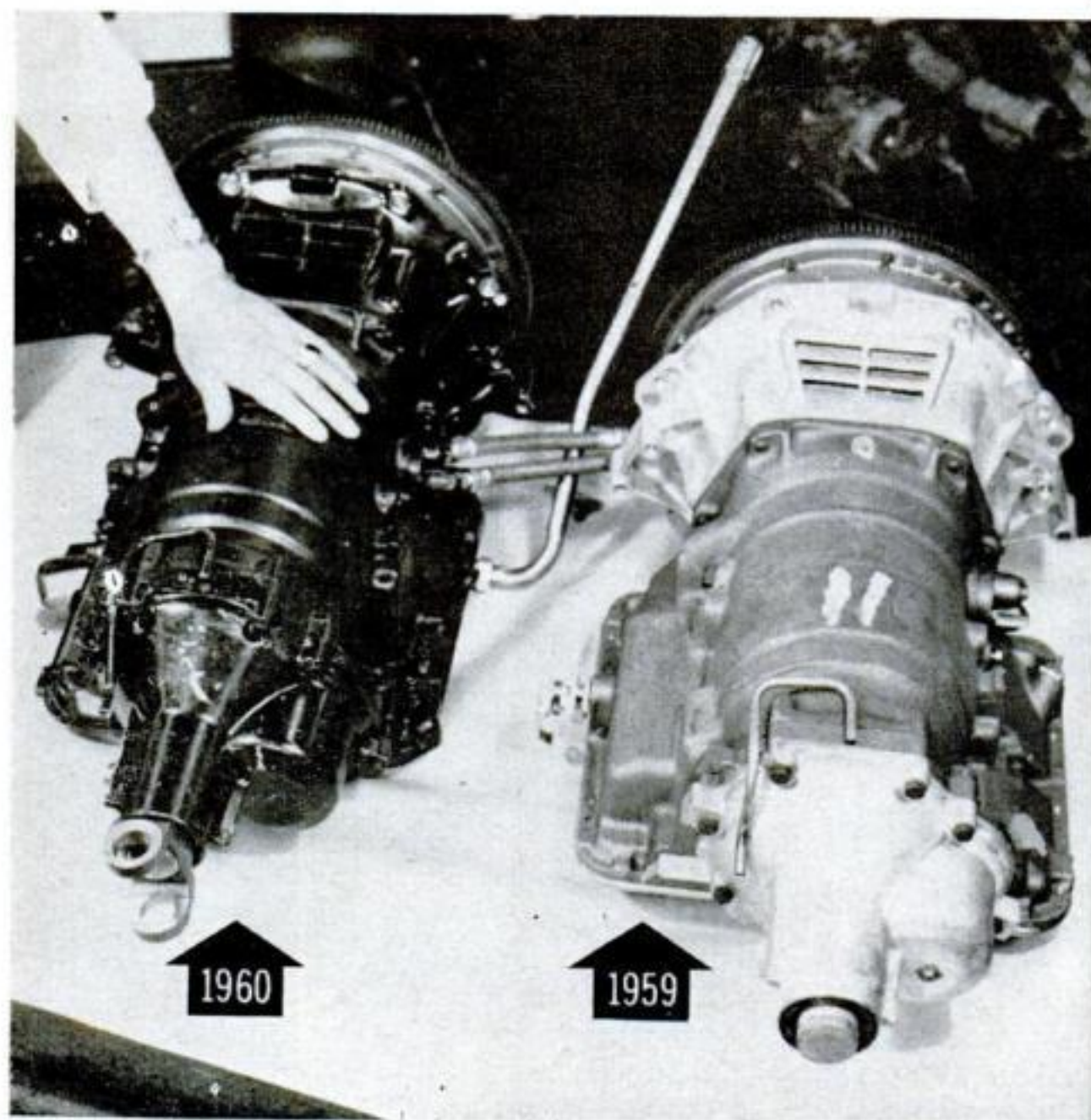
Olds Cuts Chrome,



"98" SERIES (left) at 220.9 inches is 2.1 inches shorter, .1 inch higher. The stern is prettier. Except for the roof, sheet metal on the car is all new.



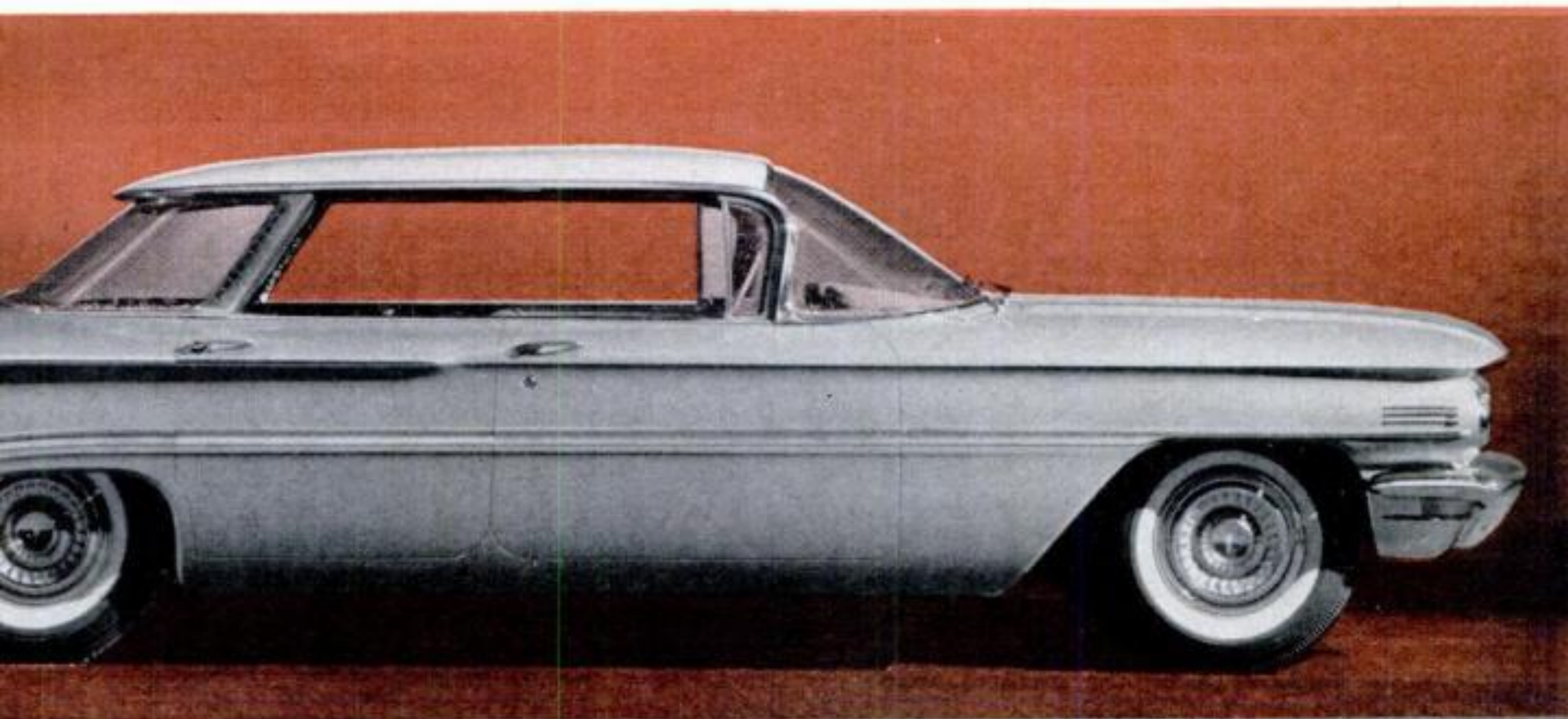
SPORTS SEDAN (above) like the rest of the new Olds, rides more softly—the result of a program on body mountings. Rear doors open wider, give five more inches entrance room. Axle ratio on "98" is 3.23:1, down from 3.42 in '59; and Super's is 3.07, down from 3.23.



HYDRA-MATIC transmission was slimmed down by reducing projections in valve body and hand-control linkages at sump line. Machinery remains unchanged. The weight is reduced by 11 pounds to 229 pounds. It also uses two quarts less oil—now 9.5 quarts.

Horsepower and Hump

Demure in styling and a smidgen shorter, the 1960 version steers more easily, has a new-fangled headlight dimmer and comes with an engine that's less finicky on fuel



WHEN the Oldsmobile people were putting the final touches on their 1960 automobile designs—that was last winter—they fell to mulling over the plight of the U. S. motorist at the gas pump. With higher taxes and all, filling the tank just about cut a \$10 bill to ribbons. So they decided to do something about it.

Beginning late last month, you could, for the first time in 11 years, buy an Olds that uses regular fuel. Depending on the difference between regular and premium in your area, this can save you up to four cents a gallon.

That was not all that turned up on the design boards. The new Oldsmobiles:

- Have smaller transmission tunnels bulging into the floor.

- Offer a new-fangled automatic headlight dimmer that, working in two stages, says twice to an oncoming car, "Okay, Bub, lower 'em."

- Steer more easily in the non-power versions.

- Are in brand-new dress for the third straight year.

- Are a smidgen shorter.

- Have rounded-off front bumpers for easier parking.

First off, about the engines. For the 88 series, it's the same block, with the same-size piston holes. But the compression ratio is dropped to 8.75:1, as against 9.8 in '59. Horsepower, of course, is down, from 270 to 240, and the torque from 390 pounds/feet to 375. To retain performance, the engineers did some fiddling with the cam. There is less overlap between intake and exhaust valves. That helps torque at takeoff. Low-end performance remains fine, but the engine doesn't have the steam that it did above 70 miles an hour.

Another trick, as old as the automobile business, was introduced for motoring economy. The axle ratio was reduced from 3.08 to 2.87, so the engine turns fewer revolutions per mile. As a result,

[\[Continued on page 248\]](#)

The Chrysler Family

This company's bag of surprises includes two new brands of cars, new engines, unit body construction and rustproofing

THE Chrysler Corp. last month loosened the drawstrings on a sackful of goodies in its 1960 cars. These were the chief ones:

Two brand-new lines of cars, a smallish, "compact" vehicle called the Valiant that's two feet shorter than the Plymouth (see page 120), and one of "normal" size, called the Dart.

Two new, different-sized six-cylinder engines that lie over on their sides, 30 degrees to the vertical. Their intake manifolds are cast aluminum.

A series of V-8 engines with a fresh idea in intake manifolding—carburetors at each side of the block and long, ram's-horn intake manifolds that produce 15 percent more power.

"Unit" body-frame construction to eliminate the squeaks and rattles that come with age.

A method of rustproofing sheet metal, permitting the boast that "corrosion has been conquered by the Chrysler Corp."

That's not nearly all that popped out of the sack, but it's enough for a starter.

A Plymouth-sized newcomer. The Dart—by Dodge out of Plymouth—comes powered with either of the new overhead-valve sixes that list to starboard, or with a regulation V-8. A cynical eye will discover that the Dart is about the Plym-

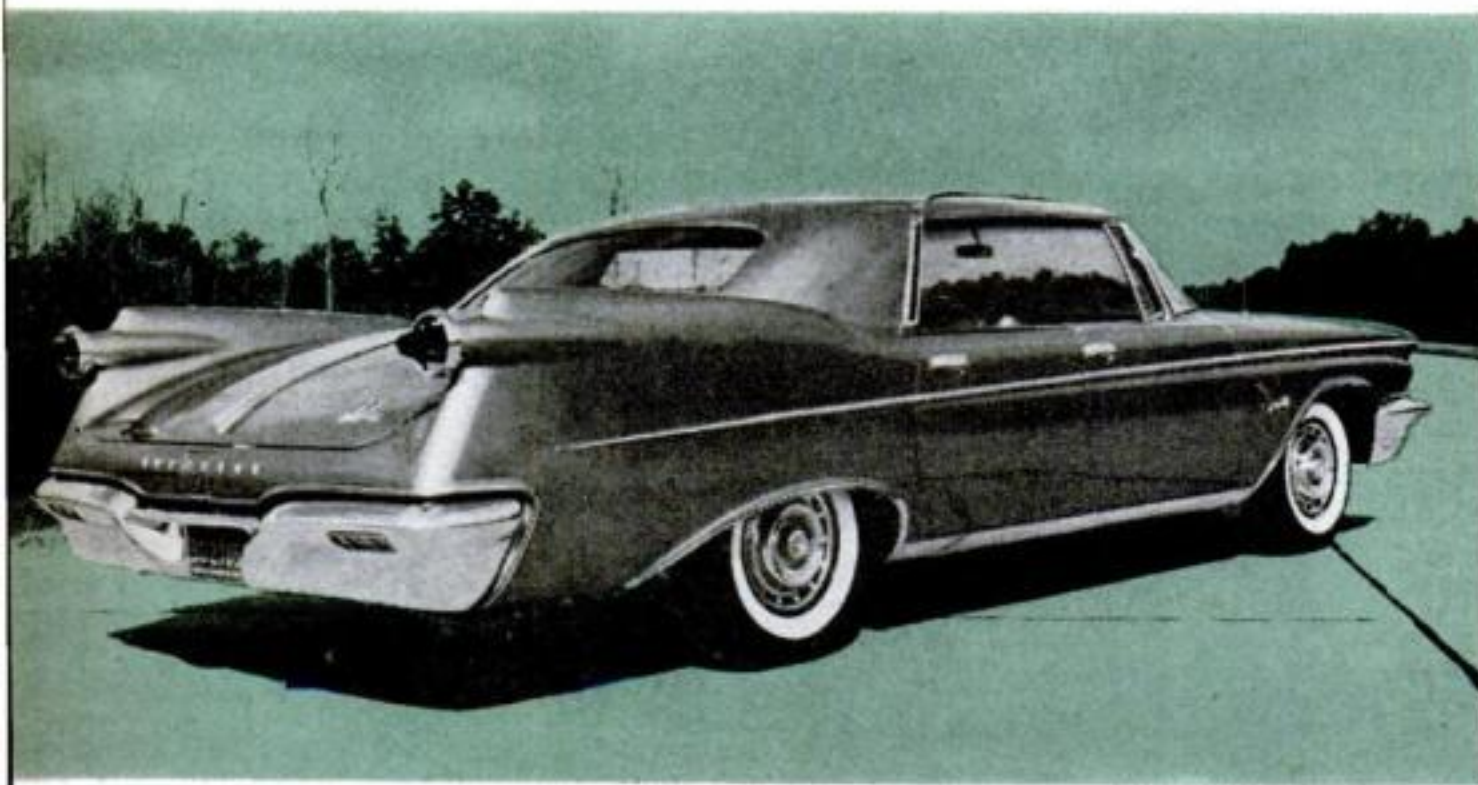
outh's size and that some of its sheet metal looks like the Plymouth's, as indeed it is. The prices of the two cars look much the same, too.

But the Dart is a brand name in its own right, with all the available accessories in the alphabet, from A for Air Conditioning to S for Swivel Seats.

The new six-cylinder engines are the first valve-in-head sixes ever produced by the corporation. They replace the old flat-heads that, at one time or another, have powered the Plymouth, Dodge, De Soto and even the Chrysler Windsor. They will be available in the Valiant and Plymouth as well as in the Dart. Dodge is sticking strictly to V-8s for 1960.

The engineers are at pains to explain the advantages of tilting the block: It allows a lower hood, drops the center of gravity, shortens the engine by moving the water pump from the front to the side, and permits the use of an elaborate intake manifolding to give the cylinders an identical fuel diet. Both new engines use the same block. One simply has a bigger bore and longer stroke.

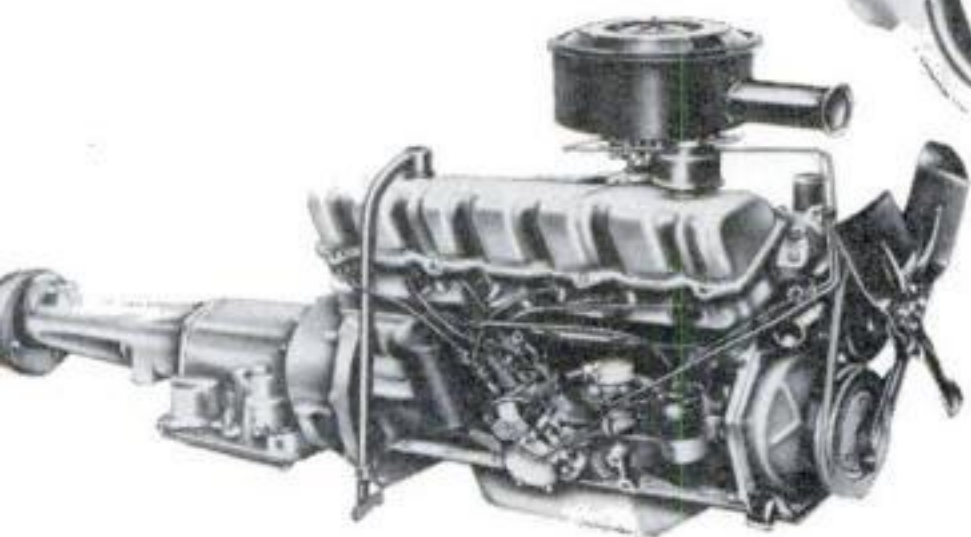
Power from organ pipes. For 1960 Chrysler has come up with V-8s of unusual behavior. Step on the gas anywhere between zero and 100 miles an hour and you experience an extra surge of power



NEW IMPERIAL, with its familiar gun-ring tail lights, is first of company's cars to be announced. Remainder will appear during October. Imperial's hood lines are longer. Sheet-metal "sculpture" extends almost full length of car. All the cars have better front entrance room because much of jog has been removed from windshield pillars. From front, new Valiant, De Soto, Chrysler tend to resemble "300" series. Least finny of the cars are Dodge Darts.

for 1960

NEW RAM-AIR manifolding on V-8 engines (right) increases passing power by as much as 15 percent. Squarish intake tubes, as on this Dodge engine, are Siamese—each pair serves two cylinders. Inside diameters are 1.87 by 1.12 inches. A four-barrel pot is positioned outside each of two cylinder banks. Ram manifolding is silent.



TILTED-BLOCK OHV-SIX ENGINES (left) have a long, aluminum intake manifold branch for each cylinder. They are fed from a single-throat carburetor. Available in Valiant, Dart and Plymouth, engines also use aluminum for distributor, oil- and water-pump housings.

without a down-shift. Part of this is due to 30-inch-long manifold pipes crisscrossing the engine from carburetors to intake valves.

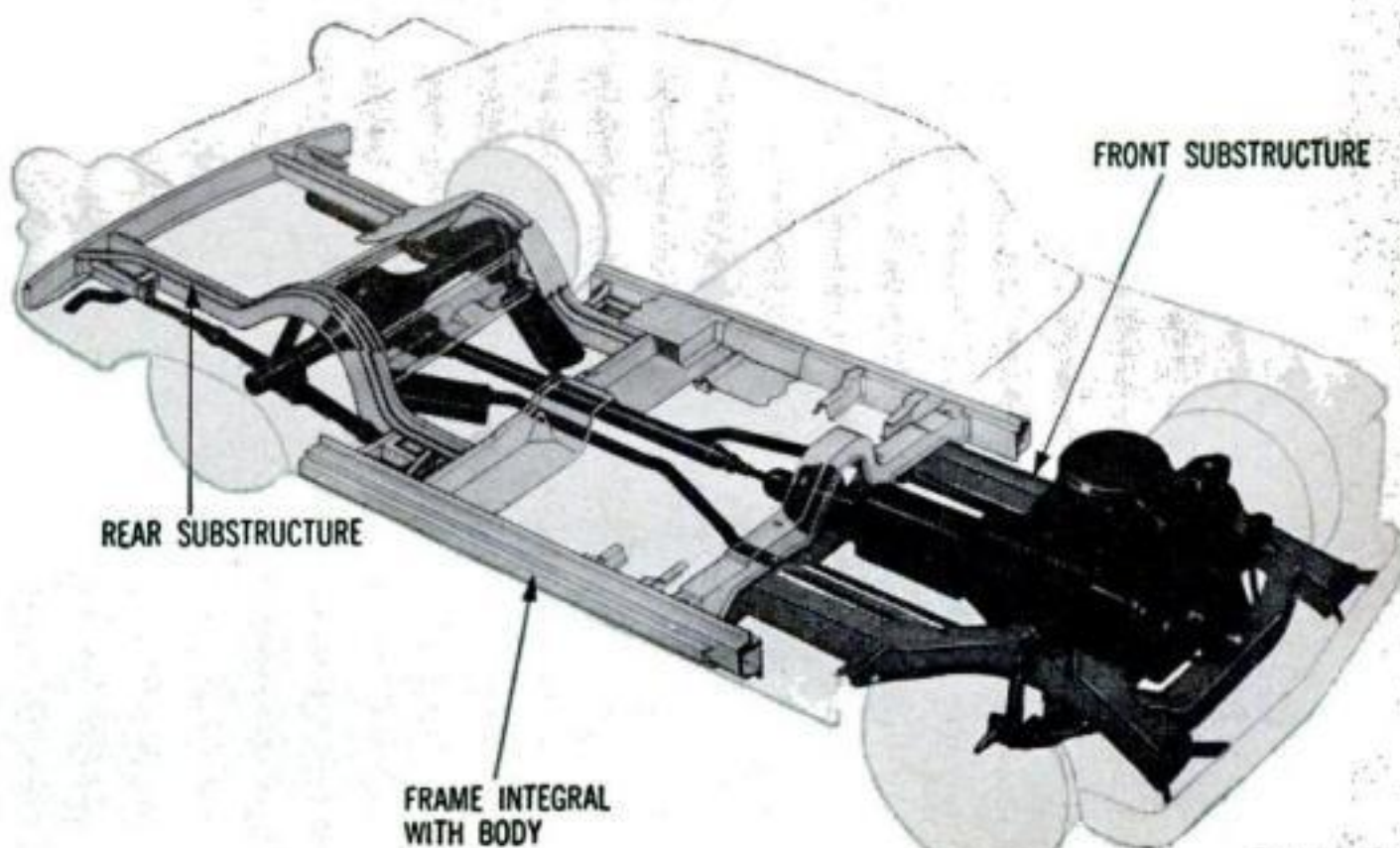
Here's how it works: If you blow into a child's whistle, a sound comes out. That's because the air in it vibrates. The pitch depends on the length and diameter of the tube. That determines its "resonant frequency." Another analogy is the pipes in a pipe organ. The deep-toned

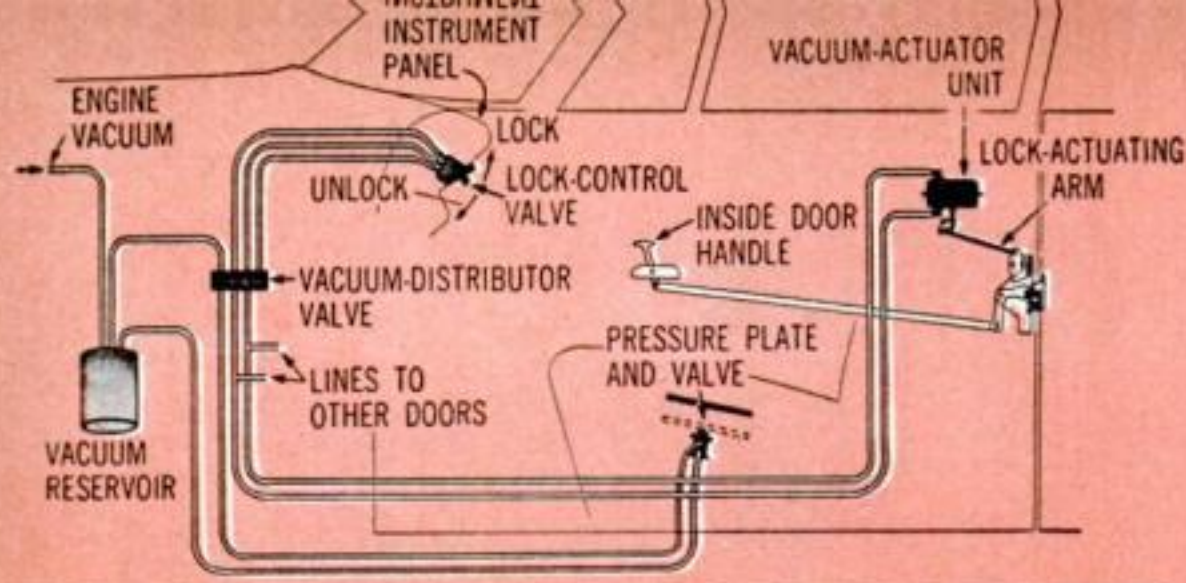
sounds come from long, fat pipes, the high ones from short, slender ones.

What you hear is actually a pressure wave, a vibration. It increases the density of the air-gas charge and thus the amount passing through the carburetor, manifold and engine. Result: more power.

Marcelled air. Something like this occurs in all automobile intake manifolds, but to a lesser degree, and, as a matter of fact, in exhaust pipes, too.

UNIT CONSTRUCTION locks body and frame together with 5,000 welds. It's modified, however, by addition of a bolted-on beam substructure to hold front suspension and engine. Six bolt positions are under front seat where frame is joined to an underbody cross member. Four are on brackets that protrude from cowl panel. Combination frame-body permits higher, wider doors. Plastic collars enfold instrument-wire holes in firewall to stop drafts.





SELF-LOCKING DOOR MECHANISM looks about as complicated as it actually is. Valve on instrument panel is master control. With valve in "on" position, engine vacuum is supplied to vacuum-actuator units in doors. Each unit pulls an arm, locking doors. Pressure-plate switch under driver's seat prevents doors from locking when driver leaves car with engine running. Doors can be unlocked by handle inside or with key from outside.

What Chrysler has done is set up a controlled pressure wave in its intake manifold to emphasize the phenomenon. Diameter and length of the tubes tell the story. The engineers figured out that a 30-inch tube with a 2½-inch i.d. would create a pressure wave—boosting the fuel-air charge along from carburetor to intake valve—with a resonant frequency of 23½ times a second. That's exactly the number of times that Chrysler's V-8 valves open each second at an engine r.p.m. of 2,800. And it's at 2,800, at full throttle, that the engine produces its greatest torque.

The wave pushes two pounds of extra pressure into the cylinders under these conditions. This "supercharges" the engine.

Bore, stroke and valve size seem to have little to do with the system's success. The 30-inch tubes work equally well throughout the Chrysler Corp.'s entire spectrum of V-8 engines.

The inevitable question is, does this semi-supercharging occur only at 2,800 r.p.m.? No, it doesn't. In diminishing degree it affects power output over a range of 1,200 r.p.m. above and below it.

Ram induction will be an option on Plymouth 361-inch V-8s, the Dodge Phoenix Matador and Polara V-8s, and De Soto Adventurers. It will be standard on Chrysler "300-F" models.

Bodies without skeletons. Frameless construction is an old story with American Motors' Ramblers and Ambassador. The Lincoln and Ford Thunderbird (and

Corvair and Falcon) have it. But it's new in Chrysler products.

Chrysler has its own version of it, too. The separate frame is almost, but not quite, eliminated. For the engine and front suspension, there is a "substructure" of steel beams to carry the weight. Other unit-body manufacturers weld this to the body. Chrysler bolts it.

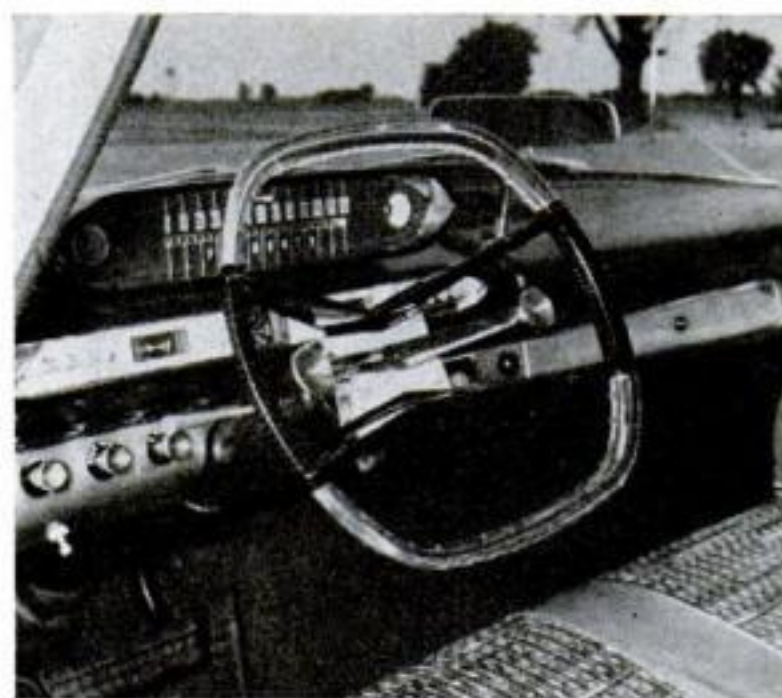
In the laboratory the unit body has proved to be a lot more stubborn to twisting and fore-aft bending.

All Chrysler Corp. cars except one—the Imperial—will have unit bodies for 1960.

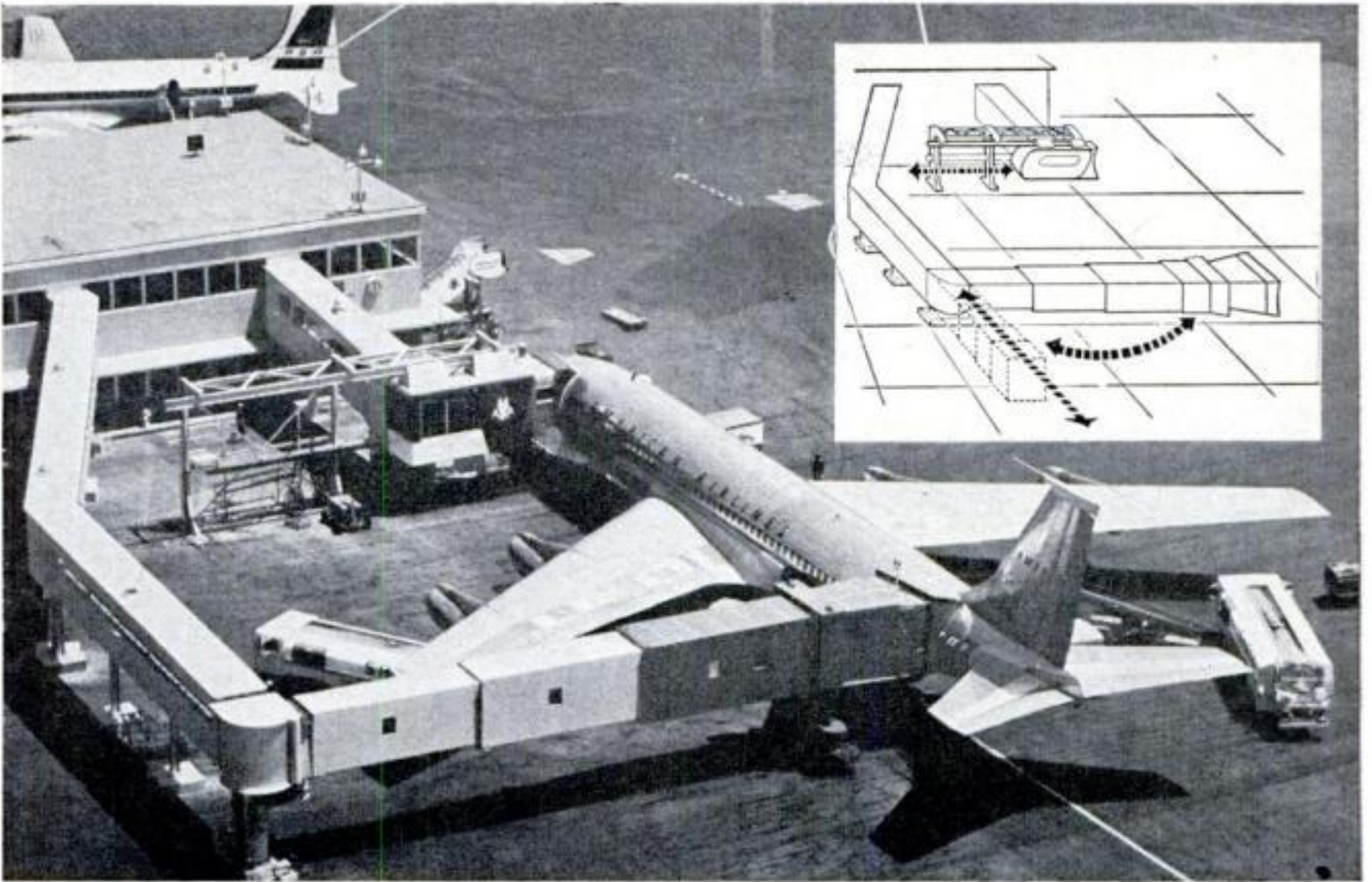
And drip-dry sheet metal, too. American Motors, Lincoln and Thunderbird all immerse their bodies in primer paint. Chrysler now has gone whole hog with the idea. Arriving

from the steel mill, the body metal is washed and coated with a cleaning compound. Stamped and welded into a body, the vulnerable bottom 18 inches then goes through seven stages of baths—washing, rinsing and coating with a gray prime paint that's allowed to dry. And then it goes through seven finishing stages of priming, baking, sanding and enameling on the outside.

Chrysler's sack of surprises contains numerous other developments. Among them are seats that are higher off the floor for better leg posture, a new windshield pillar design to lessen the chances of kneecap cracking, and an alarming, ghostly system of locking all the doors with a turn of the ignition key.



SQUARED-OFF AT TOP AND BOTTOM, special Plymouth steering wheel is standard item on Fury models and those with power steering.



COVERED CORRIDORS. Passengers using American Airlines 707 jetliners at San Francisco are breaking in a new loading system. To clear the big

plane just before departure (see diagram), the telescoping tail-door section contracts and pivots out. The nose-door bridge rolls back on an overhead monorail.



TONY TRUCK. A fancy sports top that fits on its "wideside" pickup truck is being offered by GMC for \$500. Lightweight aluminum enables it to be easily

hoisted on or off for quick conversion. The hardwood-paneled interior has two bunks. A lift-up rear door provides sunshade. Windows have Venetian blinds.

The Machine That Moves a House

By Erik H. Arctander, with photos by W. W. Morris

WHEREVER they're moving houses by the hundreds you will probably see a *Machine*. Only two exist and both are owned by James W. Hartshorne, veteran house mover of Moorestown, N. J. He and maker R. G. LeTourneau designed them. Teamed up with a trailer, the Machines transplant houses as heavy as 200 tons—saving a day's work on each one.



All arms and no body, U-shaped Machine backs

Steel beams shoved through the foundation walls and crisscrossed



1 DIRT IS DOZED AWAY from the front, sides and back of the foundation. Holes for the beams are sledge-hammered through the walls.



2 LIFT BEAM GOES IN FIRST, under back part of house. The double-web I-beam slides into place on rollers atop cribs of rail ties.



around home in way of Queens, New York, expressway. Seventy-ton house is 21 by 43 feet.

under the house form a carrying platform



3 **FOUR 60-FOOT "TRACKS"** slide under house from front to back. A pair goes under each side; they rest on the lift beam and cribs.



4 **"CROSS STICKS"** span width of house every four feet. The wood 12-by-12s and 12-inch steel beams rest on tracks; are wedged tight.

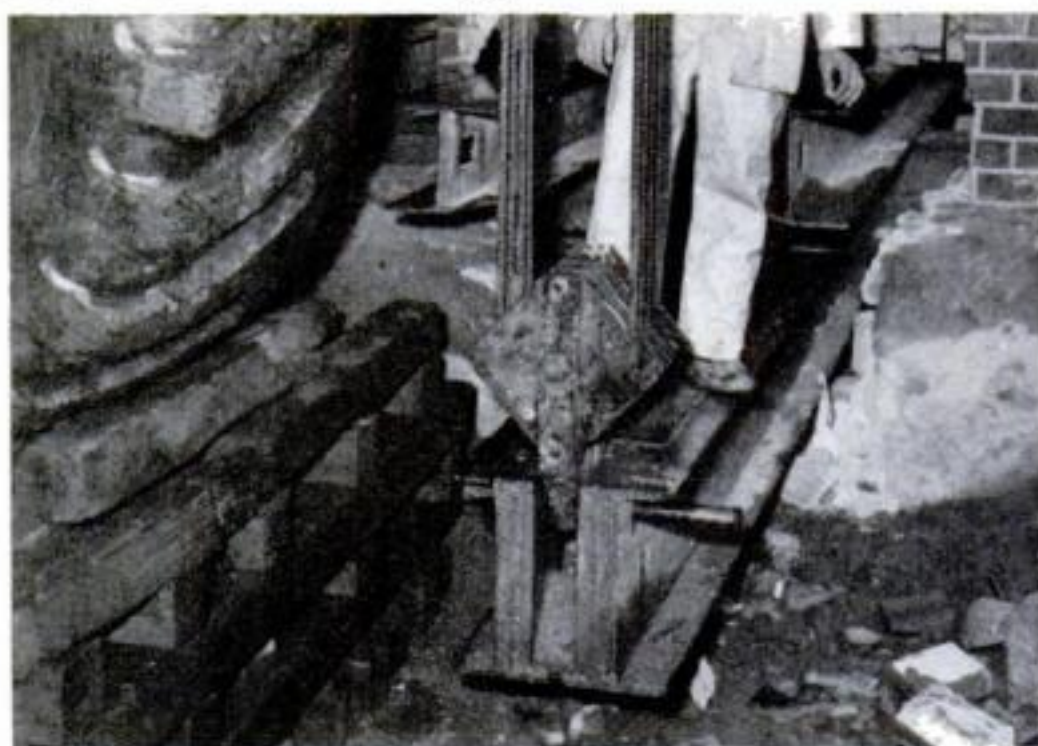
CONTINUED

131

The Machine hooks up to the lift beam and tracks, picks the house



5 **BACKING AROUND HOUSE**, each rear wheel rolls on a level path of rail ties. These spread weight carried by the 30.00-by-40 tires.



6 **MACHINE HOOKS ONTO LIFT BEAM** with four-sheave blocks suspended just beyond rear wheels. Electric winches handle one-inch cable.

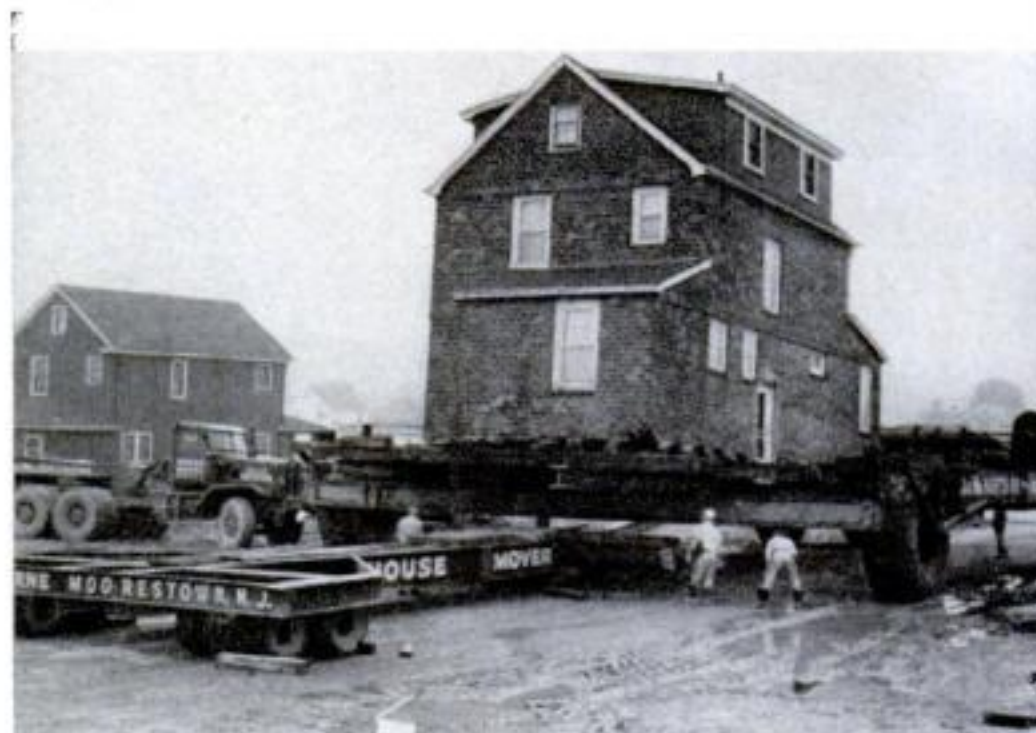


9 **MACHINE TURNS** sharply into narrow street by pivoting its two-wheel power unit. A 300-hp. diesel is geared down to give a top speed of 14 m.p.h. Because of this and excessive width, Machine stays off highways. It's shipped in six pieces on trucks and flatcars.

After a two-mile trailer trip through city streets, the house is set

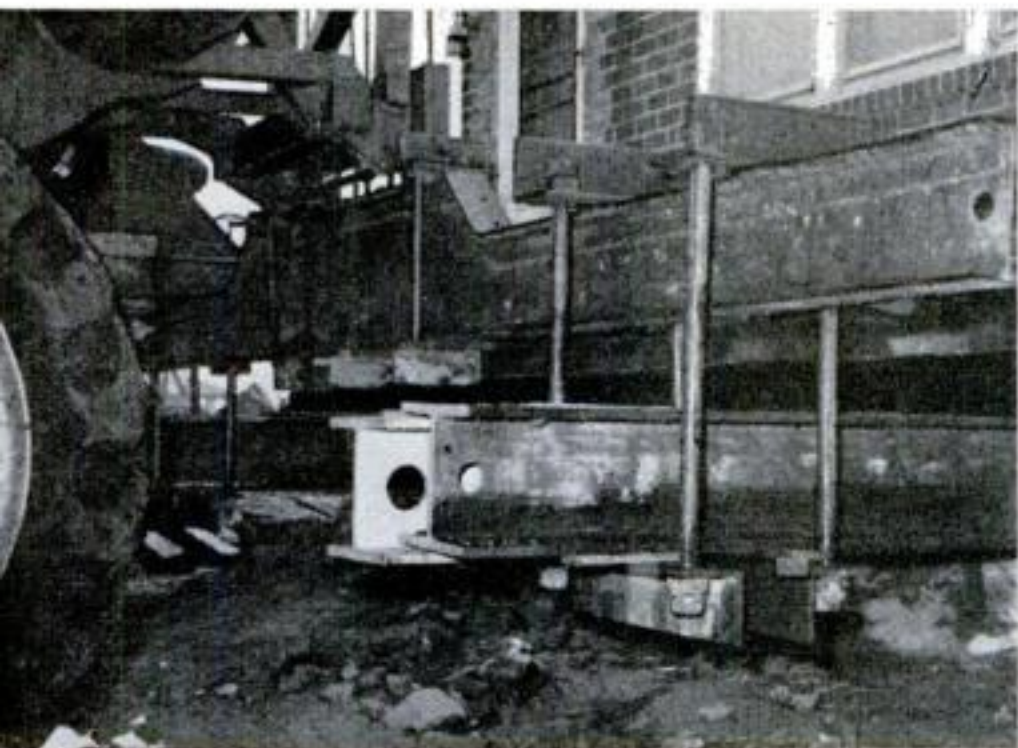


11 **ESCORT** for the trip includes two linemen in trucks to clear phone wires and two police cars. Another cop and two movers walk.



12 **SECOND MACHINE LIFTS HOUSE** off the trailer at new site. The thin brick veneer, considered tricky, came through uncracked.

off its foundations and carries it to a trailer



7 YOKE ON THE FRONT of Machine picks up the two pairs of tracks. A sling of bolts and angle irons is slipped underneath each pair.



8 LIFTING THE HOUSE off its foundations, Machine raises the lift beam first and then tracks. House was carried off tilted forward.

10 TRAILER PULLS UP behind Machine to take the house from it. The trailer's "horse" is unhitched and moved out of way. Then Machine backs over trailer bed, lowers the house onto it and drives off empty. Finally, horse is hitched up again. Transfer took a half-hour.



on new foundation by a second Machine

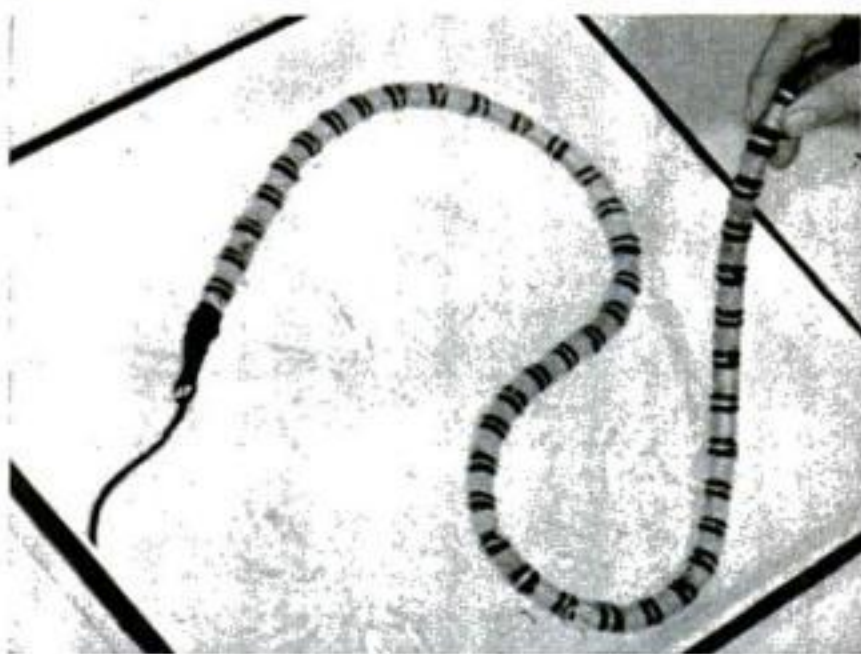
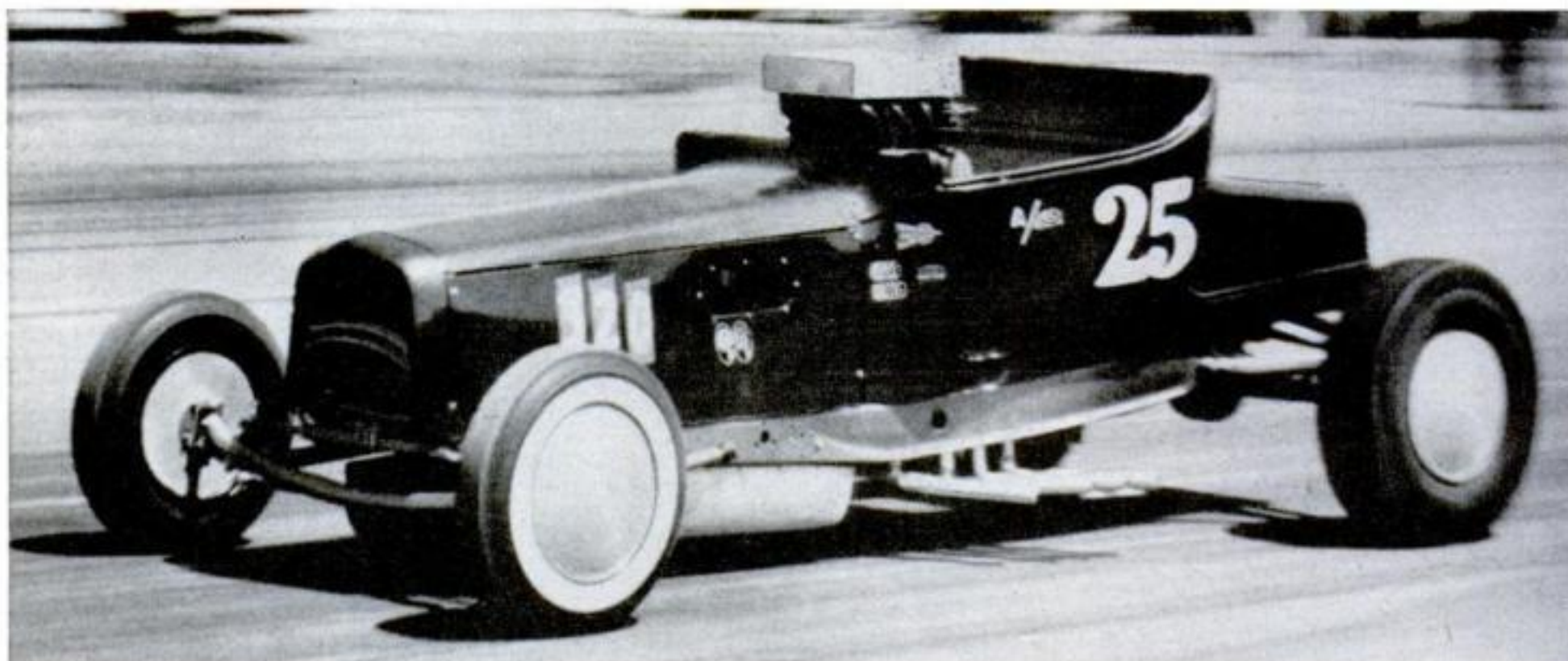


13 NEW FOUNDATION has slots in its walls into which the Machine can lower the lift beam and tracks. Cribs take the weight.

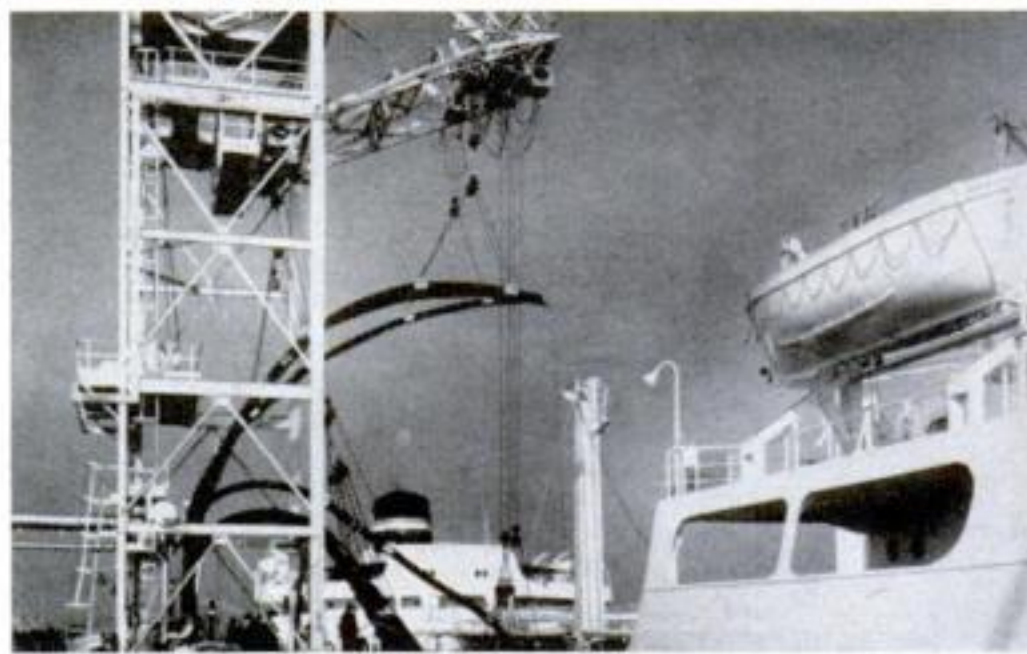


14 MOVERS LEAVE BEAMS until the masons build up foundation walls with block. Ten-man crew did the moving job in three days.

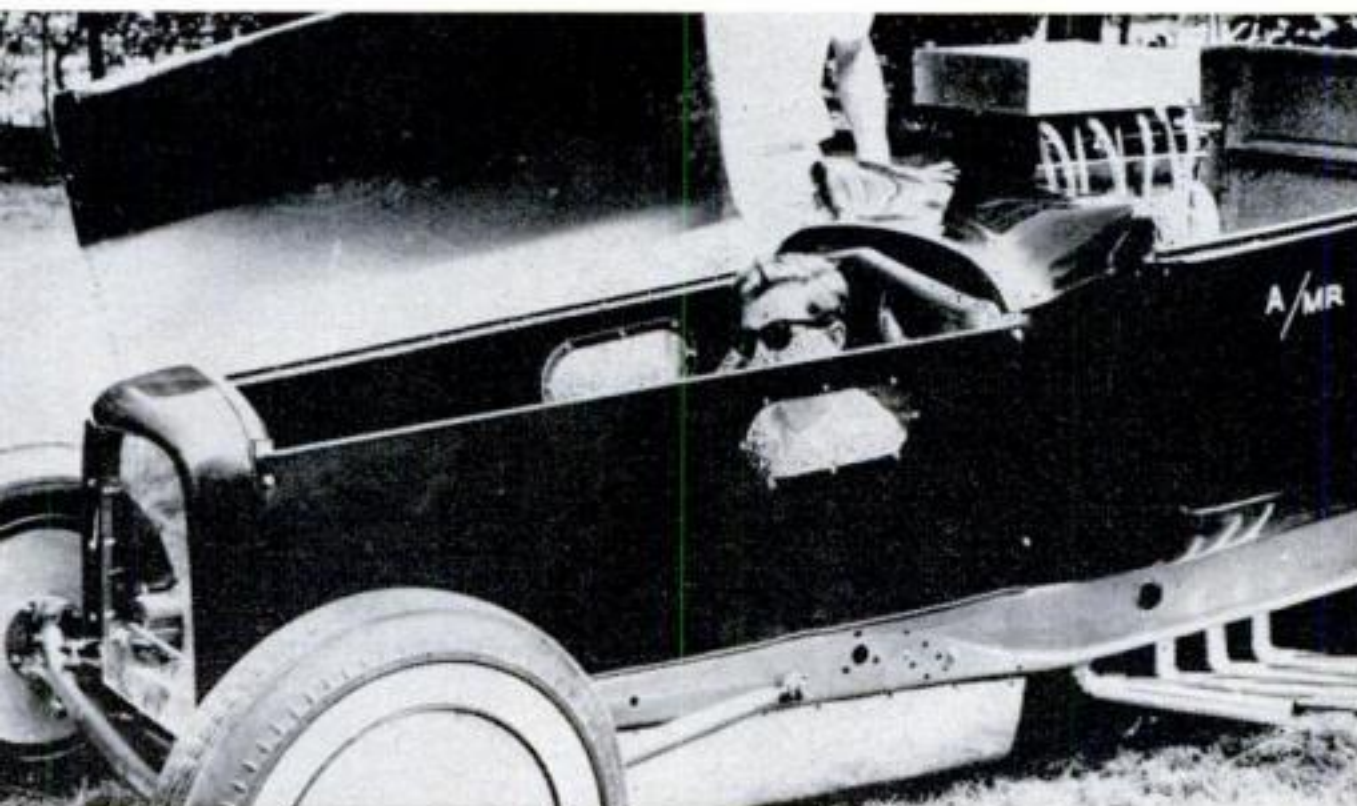
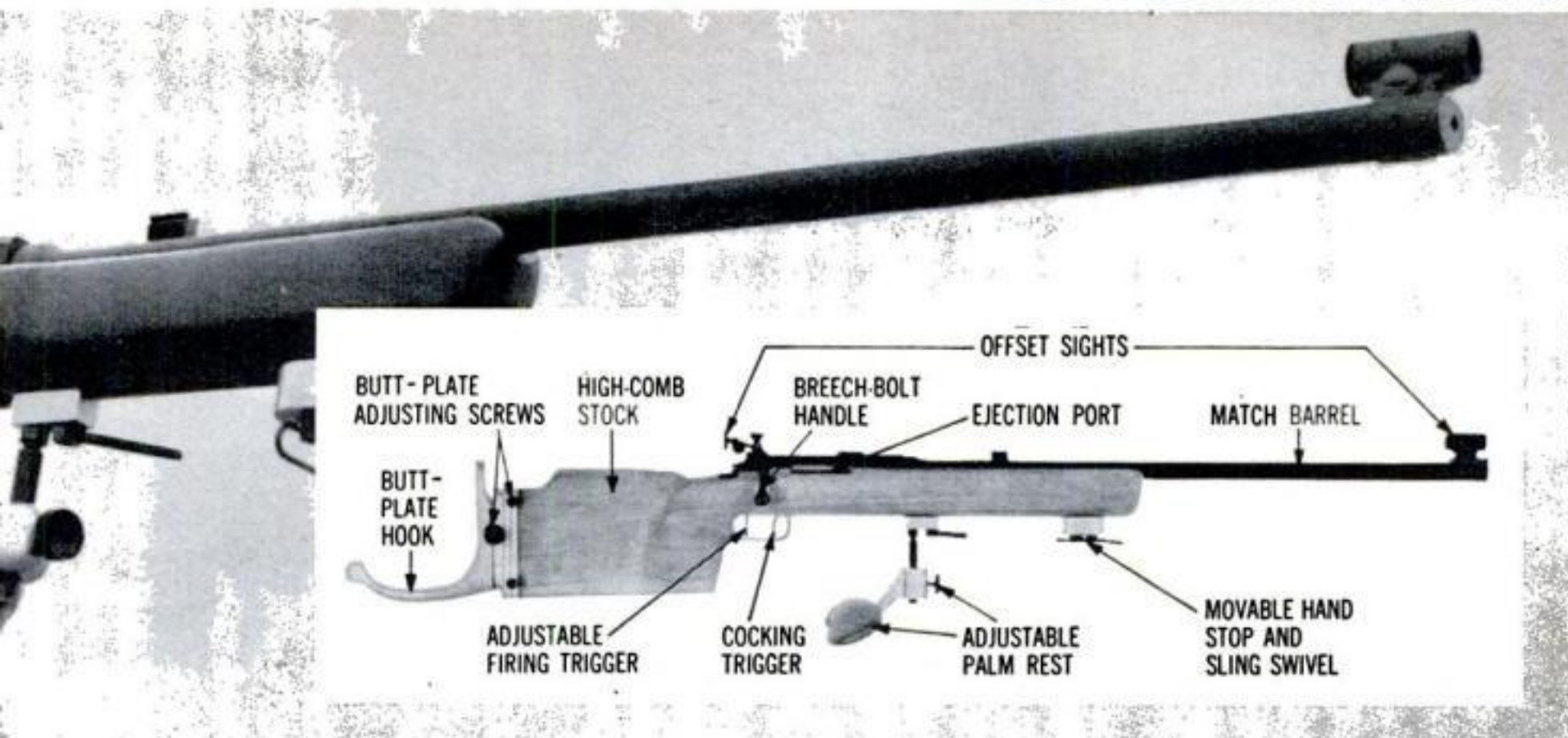
SUPER RIFLE. Here is America's first rifle since 1916 designed exclusively for international shooting competition. It was built by Winchester for next year's Olympics, costs \$3,500, won't be mass-produced. It's a single-shot, .308-caliber rifle with no safety or ejecting mechanism. Its "free-floating" barrel and double-set trigger add to its reliability. In tests at 200 yards, it has hit 10 bull's-eyes in a row with a shot-group spread under 1½ inches. A .22 is also being produced.



SIGNAL SNAKE. Spliced into an underwater cable, this "electric-eel" battery powers repeaters that boost voice and teletype signals. Developed by the Army Signal Corps, the zinc-silver chloride units are activated when immersed.

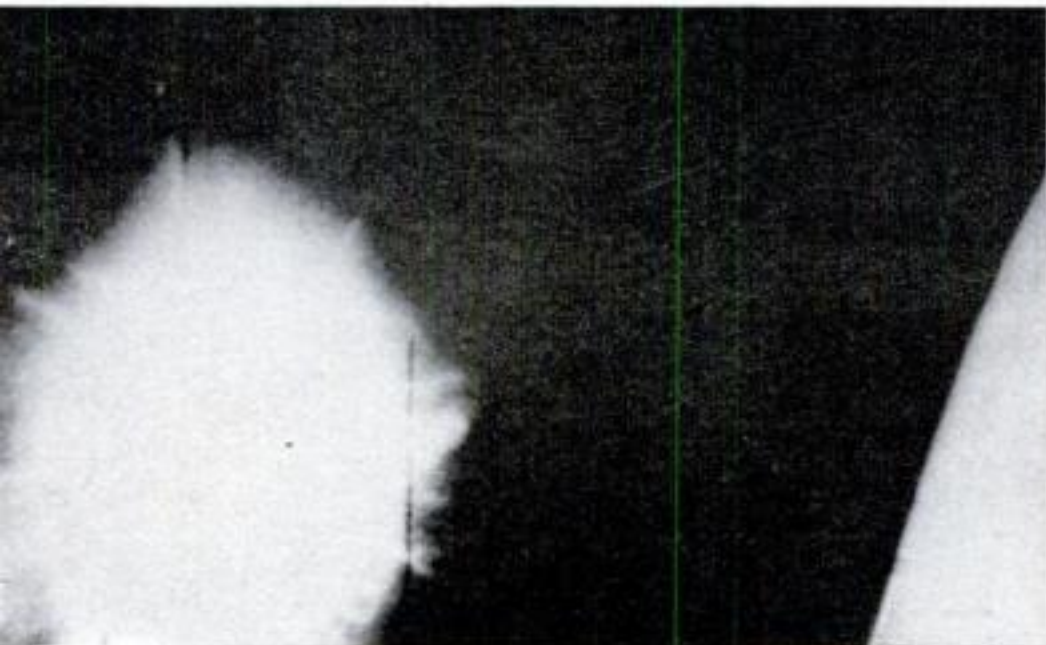


OIL UNLOADER. A new dockside crane speeds the transfer of crude oil from tankers to the Esso refinery at Fawley, England. The boom above is positioning a 10-inch suction hose to the deck coupling. Air motors reduce fire hazards.

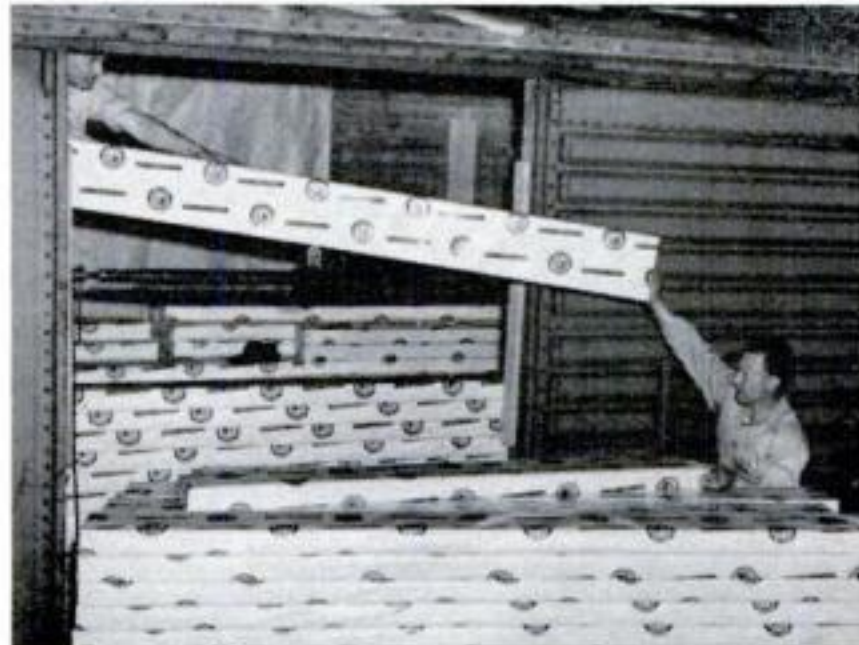


HEADLESS ROD.

If you think the car at far left is doing 118 m.p.h. on a drag strip without a driver, you're wrong. It is doing 118, all right, but the driver, Don Mitchell of St. Louis, Mo., is under the hood, as shown at near left. He sees the road through a windshield (which replaces the radiator) and small windows at the sides. It's a converted 1923 Model T Ford with an air-cooled '51 Chrysler engine on the driver's seat.



SUN AND EARTH. This is the first photo showing the sun and the curvature of the earth on the same film. It was taken 300 miles in the air. The camera was in the nose cone of an Air Force Thor missile on a flight from Cape Canaveral.



PACKAGED LUMBER. Now they are wrapping premium lumber—to keep out moisture and dirt, prevent scars. The paper, a polyethylene-coated kraft, is lightweight and takes little space. It's made by Crown Zellerbach, San Francisco.



TV'S WYATT EARP, Hugh O'Brian, claims television's fast-draw title. Time: $\frac{3}{5}$ sec.

Fast-Draw

TV Westerns have started a national craze that's hotter than hula hoops, as phony as a nine-gallon hat—and more fun than a barrel of monkeys



Modern gunslingers, who could outdraw Jesse James, fire in 20/100, or one-fifth, of a second.

HOTTER than a pistol these days is the handgun business. An estimated half-million Americans have taken up the quick draw as a hobby, most of them using new .22-caliber revolvers artfully made to resemble the weapons carried by the Wyatt Earps and Paladins of TV.

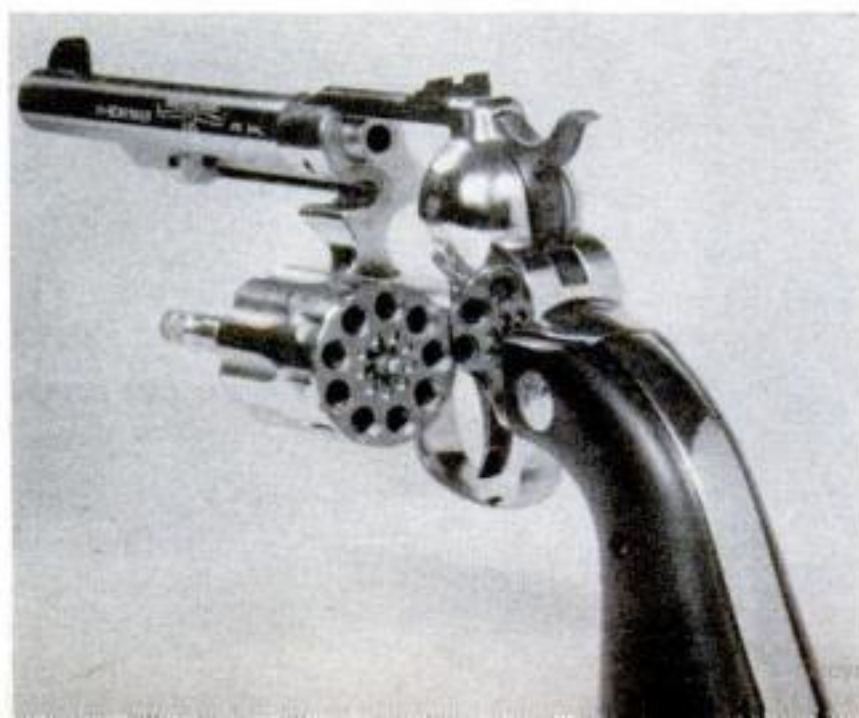
Already this fast-growing fad—and the accidents that have accompanied it—have brought cries of protest. Bills to curb or regulate the sport have been introduced in Congress. One normally dainty woman's magazine recently kicked up its bloomers in an article angrily titled "This Very Day a Gun May Kill You." De-



SINGLE-ACTION COPY faithfully reproduces early method of inserting cartridges, one at a time, through "loading gate." This is Sturm, Ruger's .357, also available as .22.



DOUBLE-ACTION gun has swing-out cylinder, permitting fast loading and simultaneous ejection of all shells. This is High Standard's unique nine-shot "sixgun."



Fad Brings Boom to Handguns

By Sheldon M. Gallagher



Photos are from forthcoming book, "Slapping Leather," by famed film coach Rodd Redwing.

ploring the rapid rise in gun-toters and the "mayhem and murder likely to increase," the article called the "dangers of these weapons . . . a national emergency."

Emergency or not, the fast-draw fad is galloping across the nation like Western sagas across the TV screen. Today, Western-style sixguns are selling at the rate of 150,000 a year—nearly 3,000 a week. There are, in fact, more sixguns in use now than in the days of the Daltons.

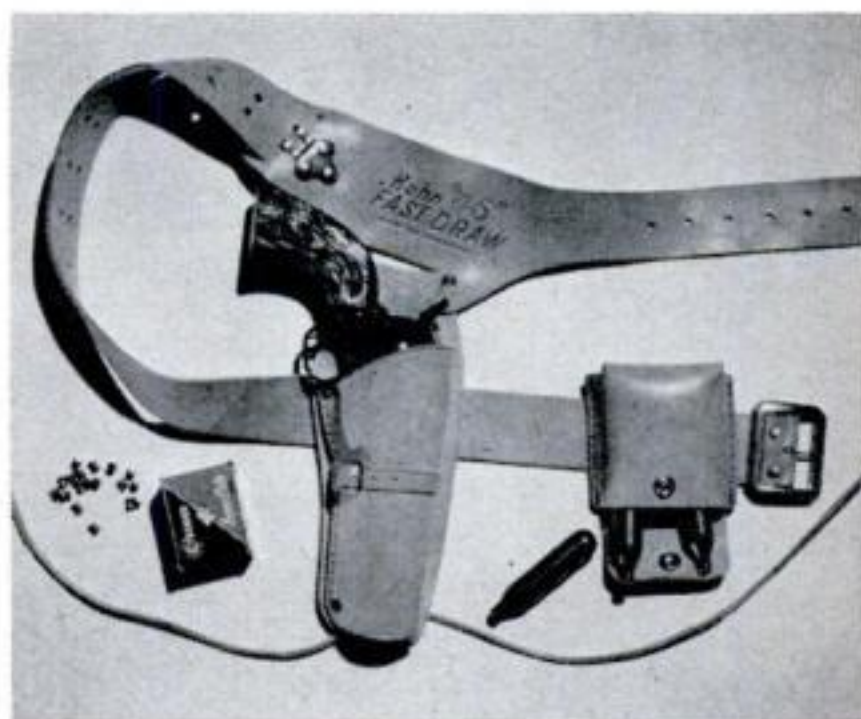
Colt, originator of the famous "Peacemaker," did its biggest business in the 1880s when it sold a mere 8,000 guns a year. By the late 1930s, Colt's Peacemaker sales had dwindled to about 300 a year, and in 1940 it stopped production.

The stampede is on. Today, fast-draw clubs with such names as the San Bernardino Thumbbusters and the Hangtown Gunslingers hold weekly "shootdowns" using near-identical copies of the historic Colt. Such clubs now number as many as 800, with up to 300 in California alone. A recent meet in Las Vegas drew an estimated 12,000 spectators.

In their eagerness to improve their art, fast-draw fans and target shooters may

burn up 20,000 to 100,000 rounds of ammunition in a single contest. Winchester, eyeing this booming market, has just announced a new souped-up .22 cartridge, the .22 Magnum. It's designed to give the range and accuracy of expensive center-fire cartridges at a modest price.

The sixgun has a special charm despite



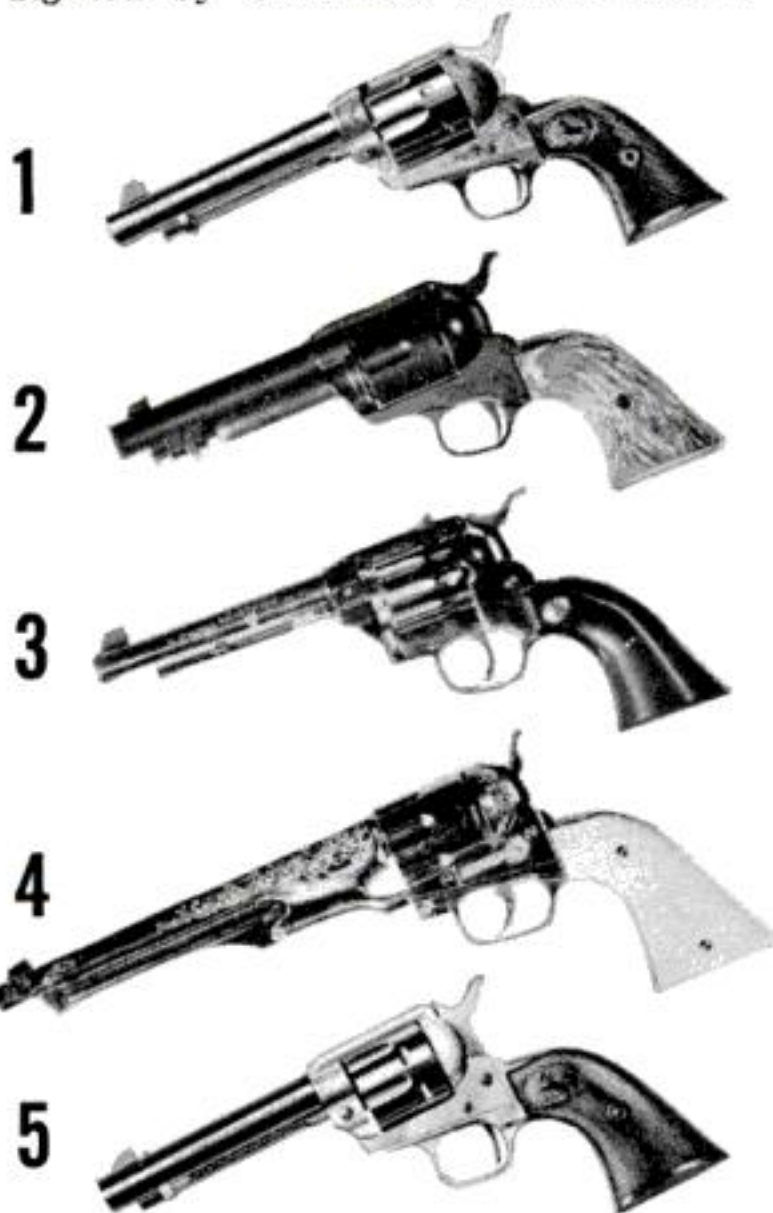
GAS-POWERED GUNS are used in many fast-draw meets for safety: Force of blast will trigger timers without requiring live ammo. Crosman sells this .22 model for about \$18, holster for \$7.

CONTINUED

137

Can You Tell Which of These Sixguns Is Real?

Only one of the guns below is an original Colt. Others, in scrambled order, are: Colt's modern .22 copy, High Standard's nine-shot .22, Crosman's gas-operated pellet gun, and an authentic-looking cap pistol copyrighted by Colt. See answers below.



ANSWERS: 1. Original Colt .45; 2. Crosman gas gun; 3. High Standard; 4. cap pistol; 5. modern .22 Colt.

its apparent limitations. Of the half-million now in use, many are of the ancient "single-action" type. As with the early Colt Peacemaker, they can be fired only by first cocking the hammer before pulling the trigger.

Sturm, Ruger, watching the growing popularity of TV Westerns, brought out in 1953 the first modern .22-caliber single-action. Two years later, Colt copied its own Colt in a .22 version.

Just last year, High Standard pulled a switch on history with a Western-style .22 that looks like a single-action but actually works like a modern double-

action revolver. You can fire it either by pulling the trigger *without* cocking the hammer, or in single-action style by cocking the hammer first.

Called the Double-Nine, it also squeezes nine .22-caliber cartridges in the space of a normal six-chamber cylinder, thereby making it history's first nine-shot "six-shooter."

Crosman Arms, famous for its gas-operated guns, has also gotten into the act, first with a Western-style BB pistol and just recently with a true six-shot, single-action .22-caliber pellet gun. Both are target-accurate within 25 feet and are classed as real firearms by New York City Police who won't allow them in the city.

Even the kids haven't been forgotten in the current craze. The old 25-cent cap pistol has given way to near-perfect copies of Colts—at \$5.

How fast is "fast"? One of the oddities of the fast-draw fad is that, while inspired by the Wild West, it is as phony as a dude in Texas high heels. With few exceptions—like Ed McGivern, who could hit a playing card five times at 15 feet in 2/5 of a second—most experts agree the average Old West cowpoke couldn't hit the broad side of a barn in a quick draw.

The real Wyatt Earp, in his biography, punctures the fast-draw myth by claiming that the best guns took time to get off one well-aimed shot while their opponents pumped two or three misses at them.

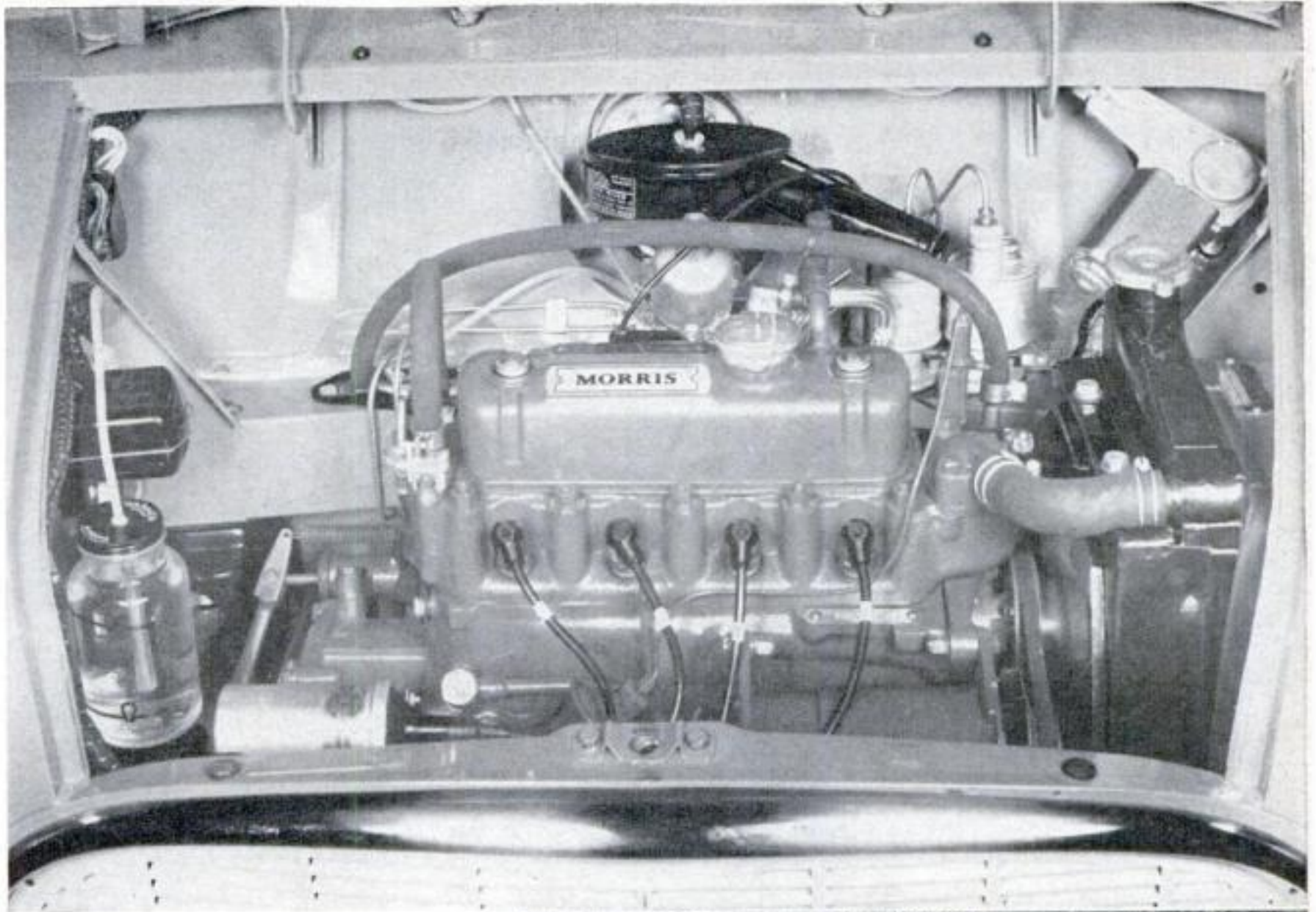
Today, there is little doubt that modern gunslingers can outdraw their Western ancestors. While no one has yet equaled McGivern's feat, it is not unusual to find men who can draw and hit a target in 1/5 of a second, or who can draw and fire in 1/10 of a second. Others can get off as many as six shots in a single second by "fanning" the hammer.

How they do it. Few of even the most competent fast-draw fans dare use live ammunition because of a curious quirk: Most people are faster on the trigger than they are on the draw.

Since the single-action revolver must be cocked before it can fire, the first step is to snap back the hammer with the thumb before the gun even clears the holster. At this point, the slightest jar or anxious twitch may fire the gun.

Accidents are often the result, not of

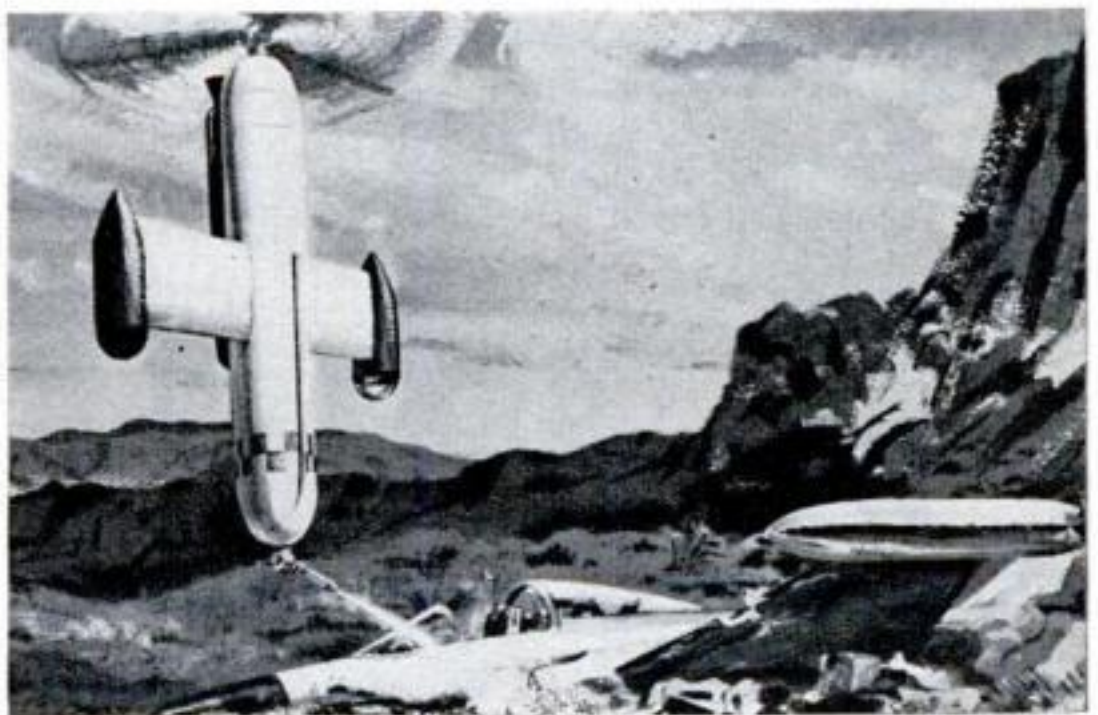
[Continued on page 236]

**CROSSWISE ENGINE.**

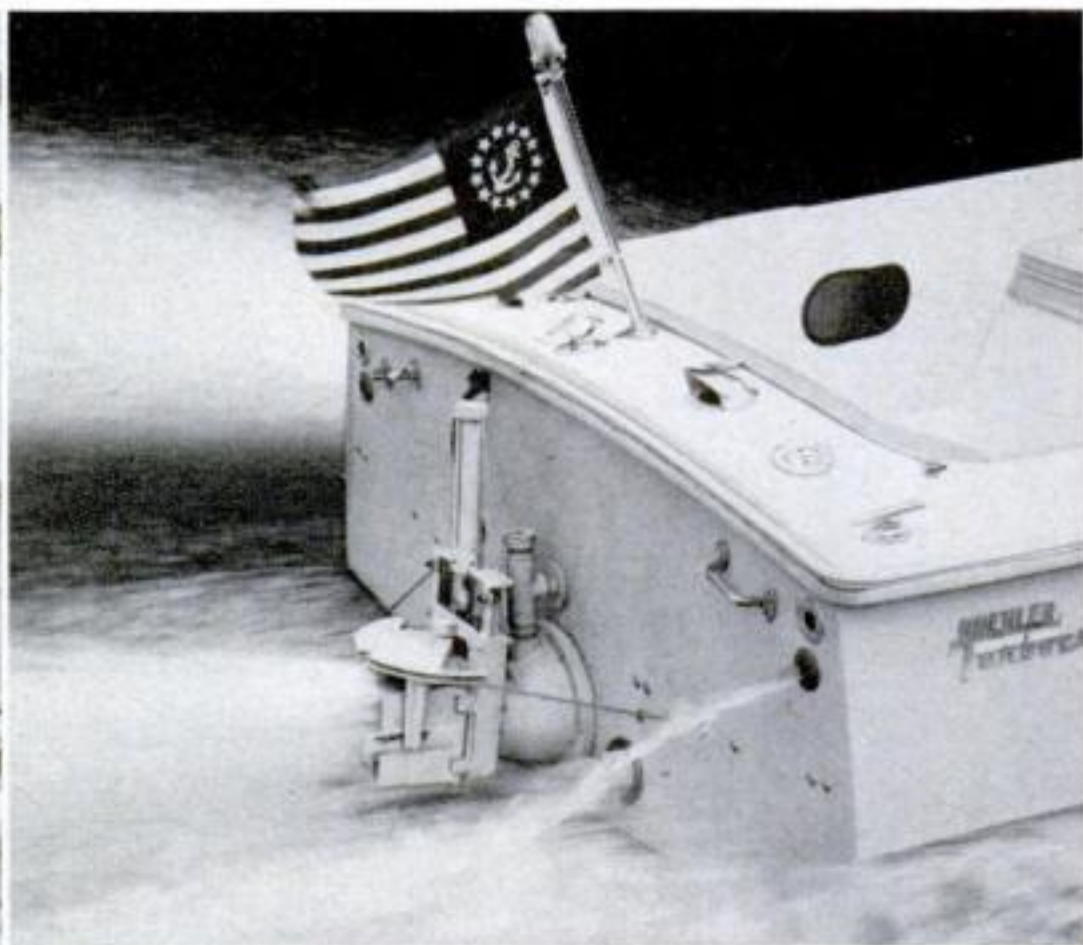
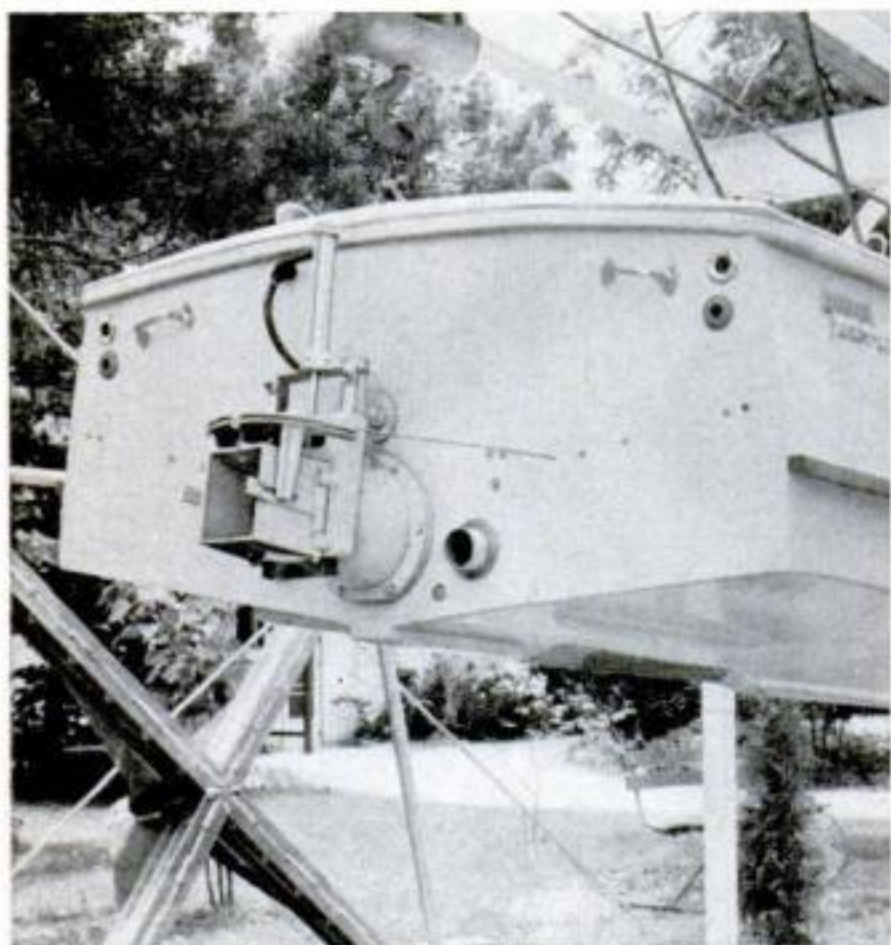
For more leg room, the British makers set the Morris Mini-Minor's engine athwart the front end of the 10-foot body. Air from the grille is pushed through a side-mounted radiator. The gearbox, bolted directly to the bottom of the engine, doubles as an oil sump. The differential housing is attached to the transmission case. Each wheel is sprung with an inverted rubber cone.



AERIAL SQUIRT. A proposed guided-missile fire fighter would be launched like a rocket, hover like a helicopter, fight fires in crashed planes by pushbutton control from the airfield tower. It could fly five miles in 40 seconds, thrust up its tail and squirt extinguisher on a fire before flames could endanger the passengers. The Firefly, conceived by Solar Aircraft engineers, could be built by modifying existing guided missiles.



WHAT'S NEW



Water Drives Boat Like Rocket

A jet of water, from a turbine pump driven by a gasoline engine, blasts this 16' runabout along at 36 m.p.h. Shooting out the stern above the water, the jet provides 750 pounds of rocket thrust. With no gear below the hull, the boat can

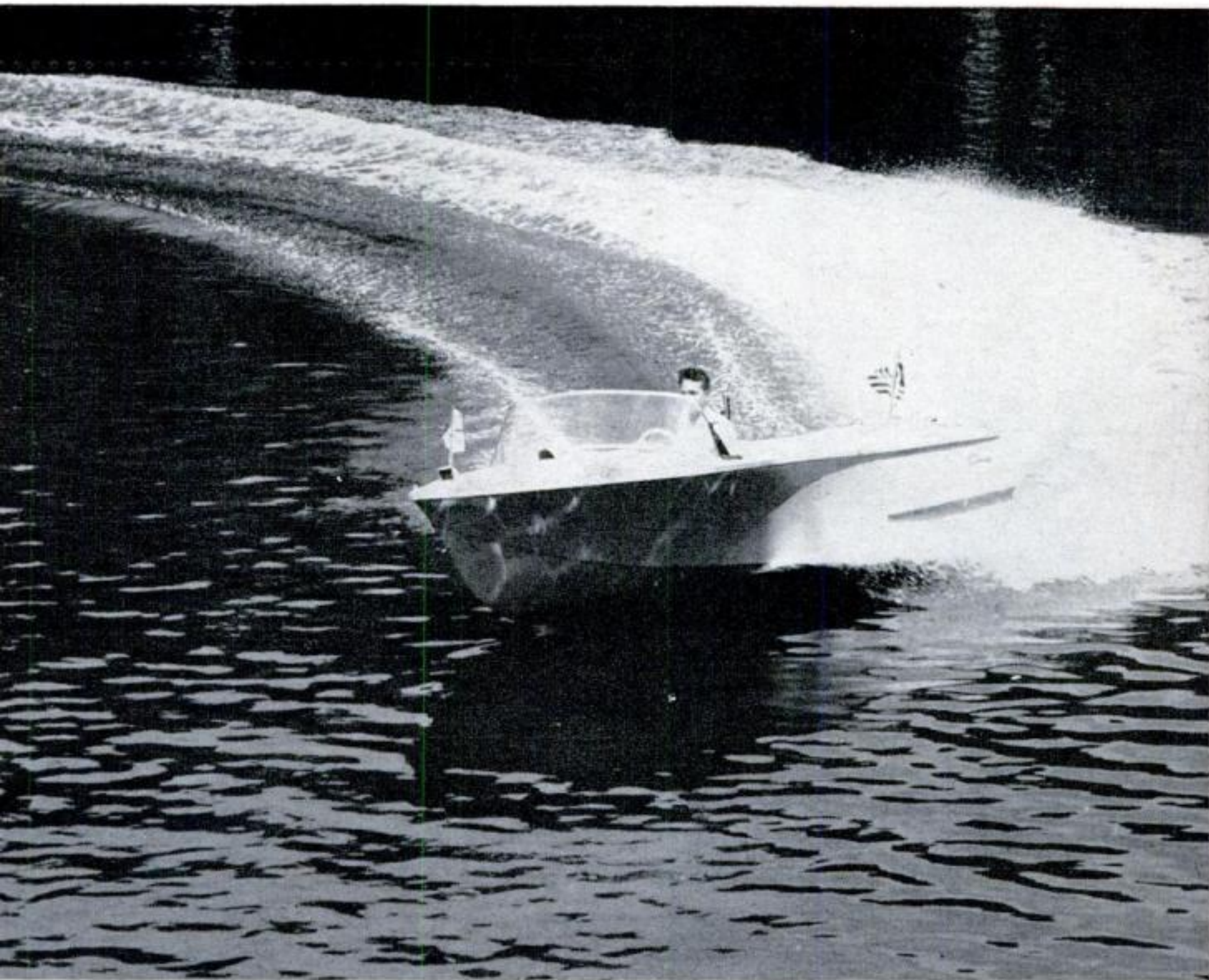
be driven full-speed in less than 3" of water. It's steered and reversed by two gates, which swivel to deflect the jet stream. Current price tag is \$2,900, with other models to come. Turbocraft Div., Indiana Gear Works, Indianapolis, Ind.



"SILENT" BLADE. Soft copper inserts at the base of expansion slots in this saw blade are said to quiet scream and damp vibrations. The carbide-tipped blades come in rip, crosscut and combination types from 3" up. Heinemann Saw Corp., Canton, Ohio.

POP-UP BED. You're not likely to oversleep with this new mechanical getter-upper. Plugged into a clock timer or clock radio, the bed automatically pops you up to a sitting position when the alarm goes off. Simmons Co., 1870 Merchandise Mart Plaza, Chicago.

PIPE PAINTER. This four-sided roller is said to paint fence posts, railings and pipe in one stroke—four times faster than a brush. The flexible frame takes diameters 1/2" to 2 1/2". About \$5, Speedway Paint Appliance Co., 565 55th St., Brooklyn, N. Y.



LOW-COST WALLS.

This extra-heavy perforated hardboard is made for lining garages, shops and tool sheds inexpensively. It's $\frac{1}{4}$ " thick and comes factory-finished in light blond, with matching-color nails, for 17 to 19 cents a sq. ft. Evans Products Co., Corvallis, Ore.

SPLASH DRAIN.

Just slip it under the downspout to carry rain water away from the house. The light, 36"-long galvanized troughs can be moved easily for mowing. About \$3, New Monarch Machine and Stamping Co., 406 S. W. 9th St., Des Moines, Iowa.

PORTABLE SAW.

This one boasts professional-quality features at a price below \$40. The 12-lb. saw has a 7" blade and 10-amp, $1\frac{1}{2}$ -hp. motor. It cuts two-by-fours at 45 degrees and $2\frac{1}{8}$ " deep at 90. Thor Power Tool Co., 1421 Barnsdale Rd., LaGrange Park, Ill.

CONTINUED

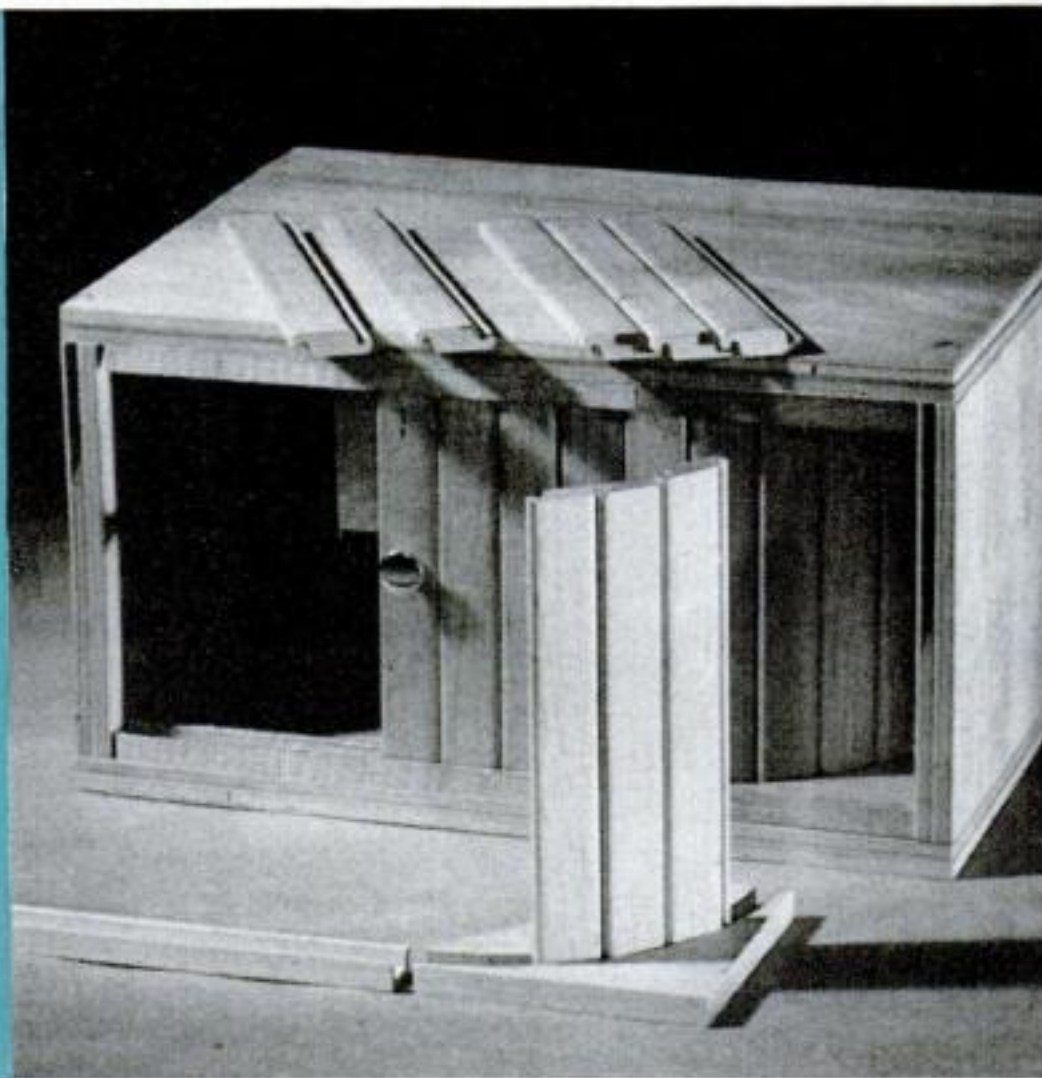


A Surrey Kids Can Pedal

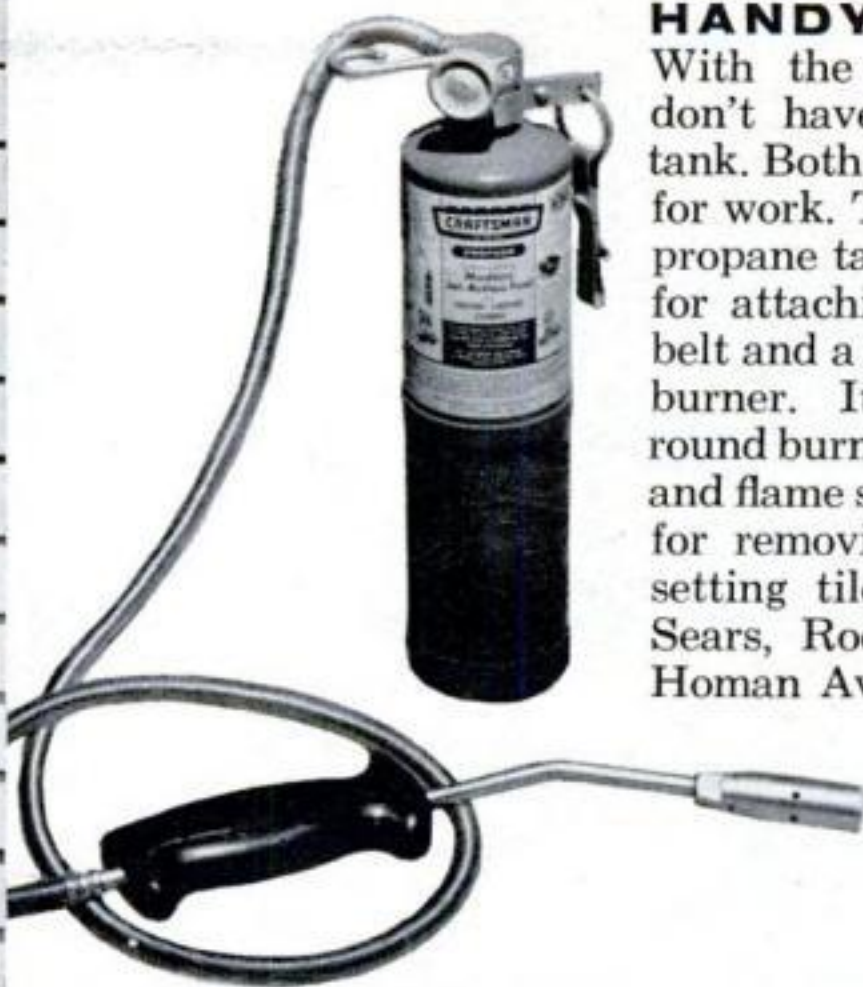
Proof that the "good old days" are also popular with today's young set is this modern pedal-powered version of the surrey—complete with fringe on top. The chain-driven two-seater is 55" long, 52" high and has automotive-type front-wheel steering. Two models are available, one with the canopy as shown for about \$50 and one without a canopy for about \$40. Universal Mfg. Co., 415 Hamilton Rd., Bossier City, La.



LEGS FOLD FLAT. Popular hair-pin legs now come in a collapsible type that makes it easy to store picnic tables, benches and card tables. Squeezing the legs releases or locks them quickly in slotted mounting brackets. Three lengths—16", 26" and 29"—sell for up to \$16.39 for a set of four. Chas. O. Larson Co., Box 358, Sterling, Ill.



DISAPPEARING DOORS. These interlocking strips let you put together your own flexible tambour doors, usually found only on fancy custom cabinets. The maple strips hook together, require no backing and come 18" to 48" long for 24 cents a foot. Straight and curved tracks are also available. M & J Wood Products, 230 Newbridge Ave., East Meadow, N. Y.

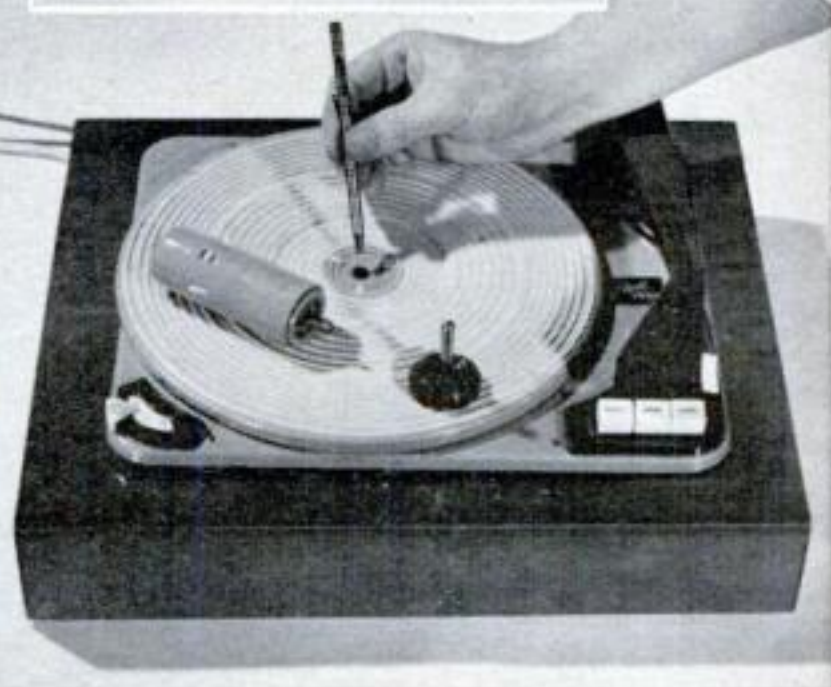


HANDY TORCH.

With the 4' hose, you don't have to hold the tank. Both hands are free for work. The disposable propane tank has a hook for attaching it to your belt and a hanger for the burner. It's sold with round burner tip (below) and flame spreader (left) for removing paint and setting tile. About \$10; Sears, Roebuck; 925 S. Homan Ave., Chicago.



RECHARGEABLE BATTERY. By simply unscrewing a cap, it may be plugged into any 110-volt outlet for over-night recharging. Made to fit flashlights using two D-size batteries, it contains two nickel-cadmium cells and a built-in charger. Priced at \$7.95, it's said to outlast hundreds of ordinary batteries. Sonotone Corp., Elmsford, N. Y.



CONVERTIBLE PLAYER. Adding a single center post converts this four-speed turntable to an automatic record changer. It plays all record sizes intermixed in any order and both tracks and cycles on only two grams' stylus pressure. A second center post is available for automatic playing of 45-r.p.m. records. United Audio, 202-4 E. 19th St., NYC.

"I'd like to see them make..."



WINDSHIELD GUN PORTS on police cars. Shooting with an arm thrust forward through this opening would be more accurate than leaning out an open window.—*J. F. Adams, Scranton, Pa.*



A SHOE LACE THAT STAYS TIED. Why not impregnate the lace where the knot falls with a small amount of abrasive, or coat it with a no-slip compound?—*Jack DeMent, Portland, Ore.*



THREADED ARROW SHAFTS to accept different types of arrow tips. This would eliminate the need to purchase an assortment of arrows for various game.—*V. J. Daczynski, Bayside, N. Y.*



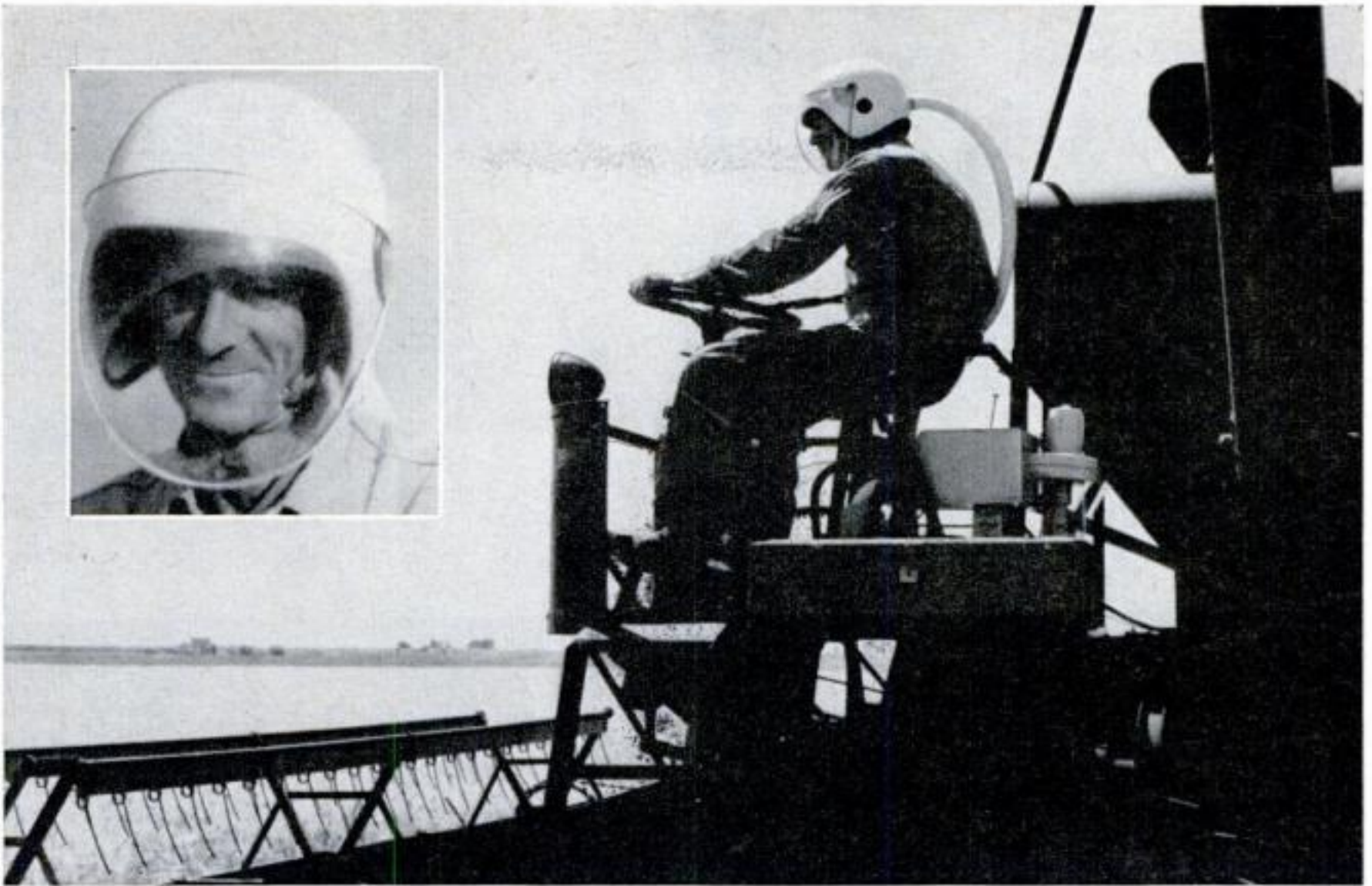
A GUTTER CLEANER for ranch houses. A hooked wand on a portable vacuum cleaner would blow away leaves as you walked the length of the low gutter.—*D. Barrett, Wayne, N. J.*



BRAKES ON MECHANICS' CREEPERS. With wheels that could be locked, you wouldn't roll with every little movement while working underneath a car.—*Date Willhite, Milan, Ill.*

Everyone has his own pet idea of a gadget that he would like to see in general use. The five ideas illustrated above were suggested by POPULAR SCIENCE readers. What's

yours? We will pay \$5 for each one published. Please use Government postcards only. Write name and address clearly. Contributions cannot be acknowledged or returned.

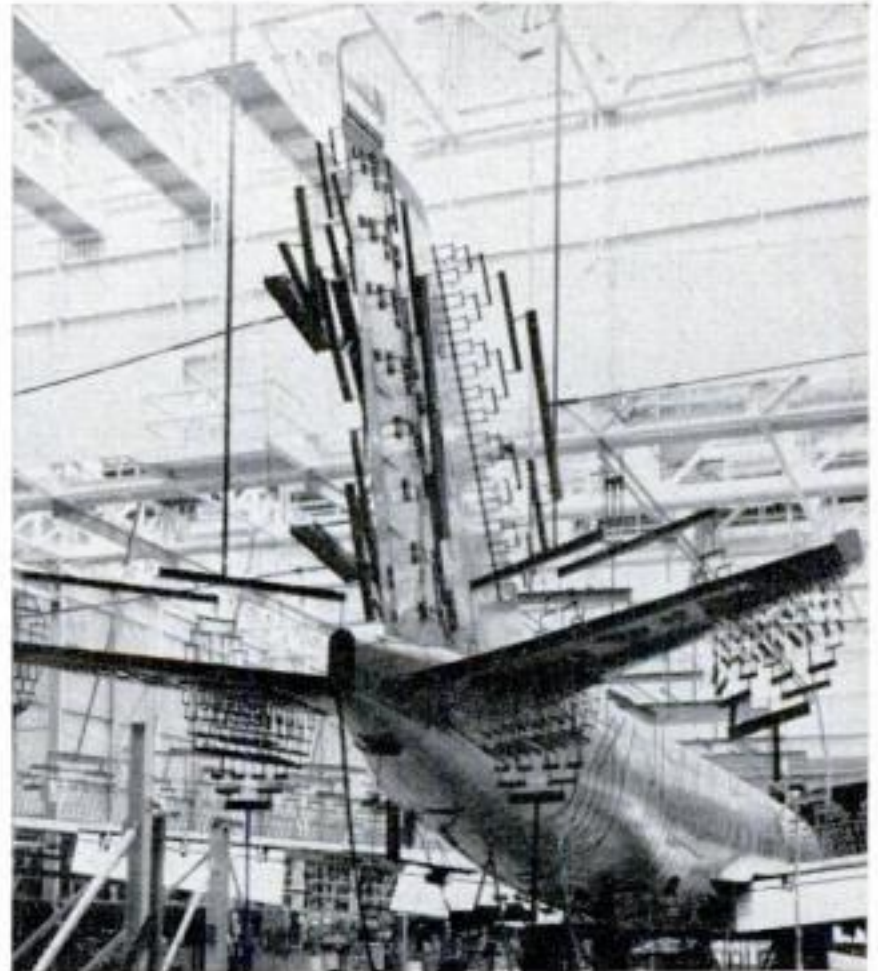


COOL HEAD. The air-conditioned helmet above keeps an operator of road machinery or other heavy equipment cool in hot weather by enabling him to breathe

cool, dry, filtered air. Air is pumped to the fiberglass helmet from a sealed refrigeration unit behind him on the floor. The transparent facepiece is hinged.



BIG EYE. This huge antenna tracks missiles from Cape Canaveral, Fla. It is part of the latest radar equipment aboard the Army's S.S. American Mariner, which sails the Atlantic missile range to provide precise performance data far out at sea.



HEAVY STRESS. Here's how they try to break a Convair-880 jet airliner apart. The whiffletrees adorning rudder and stabilizers are attached to surface-tension pads. They transmit 16 tons of pressure from a powerful hydraulic ram.



Navy's A3J Spits Bomb

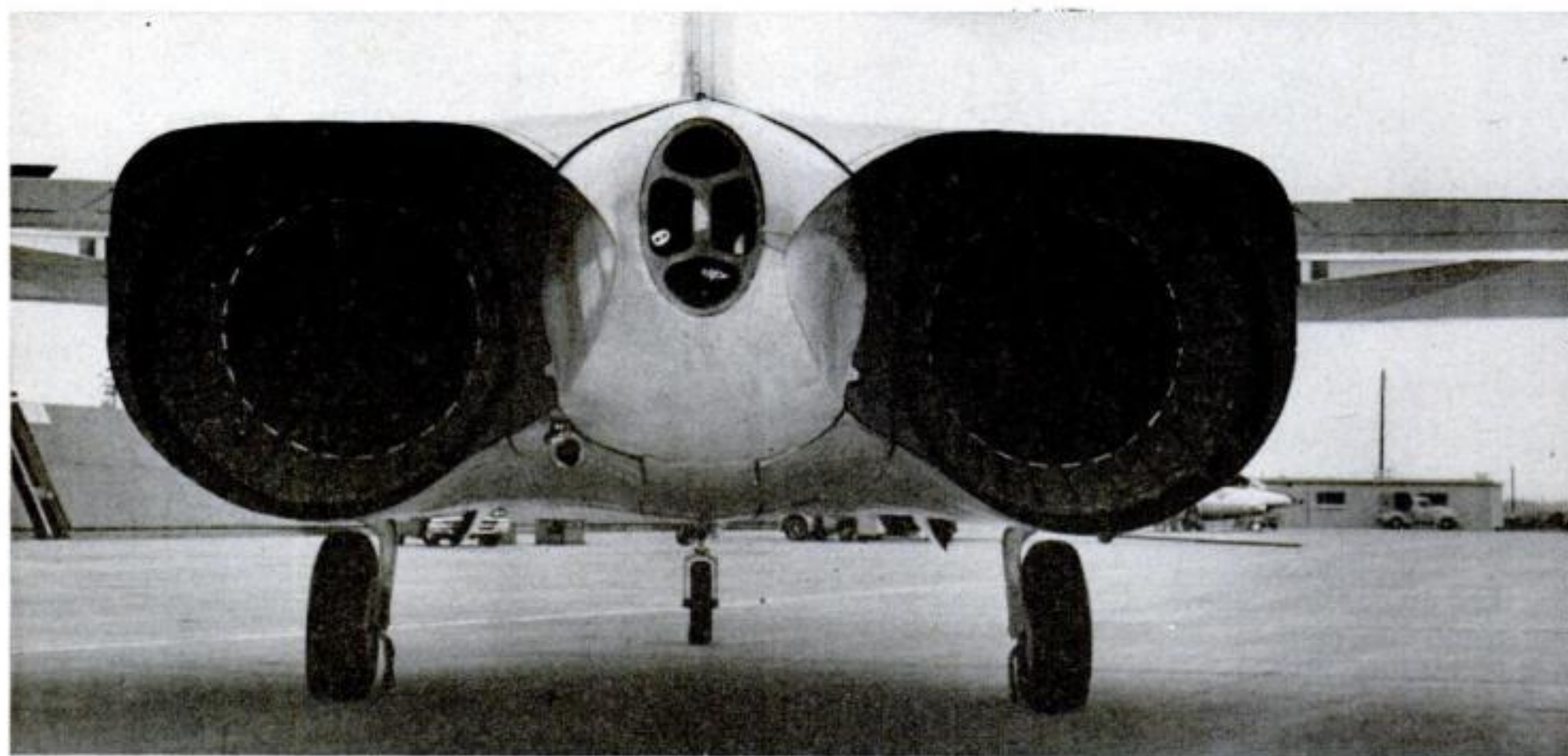


THE beast of an airplane pictured above is designed for something new in nuclear bombing. Between the two huge jet tailpipes is a hole. An H-bomb can be shot from it, over an enemy target, much like a bazooka charge. The bomb drops straight down because it comes out of the hole at about the same speed the airplane is traveling—said to be 1,400 miles an hour. The airplane's speed and the bomb's speed cancel out.

This unique wrinkle in bombing tech-

nique gives the aircraft, the U. S. Navy's A3J Vigilante, greater target accuracy.

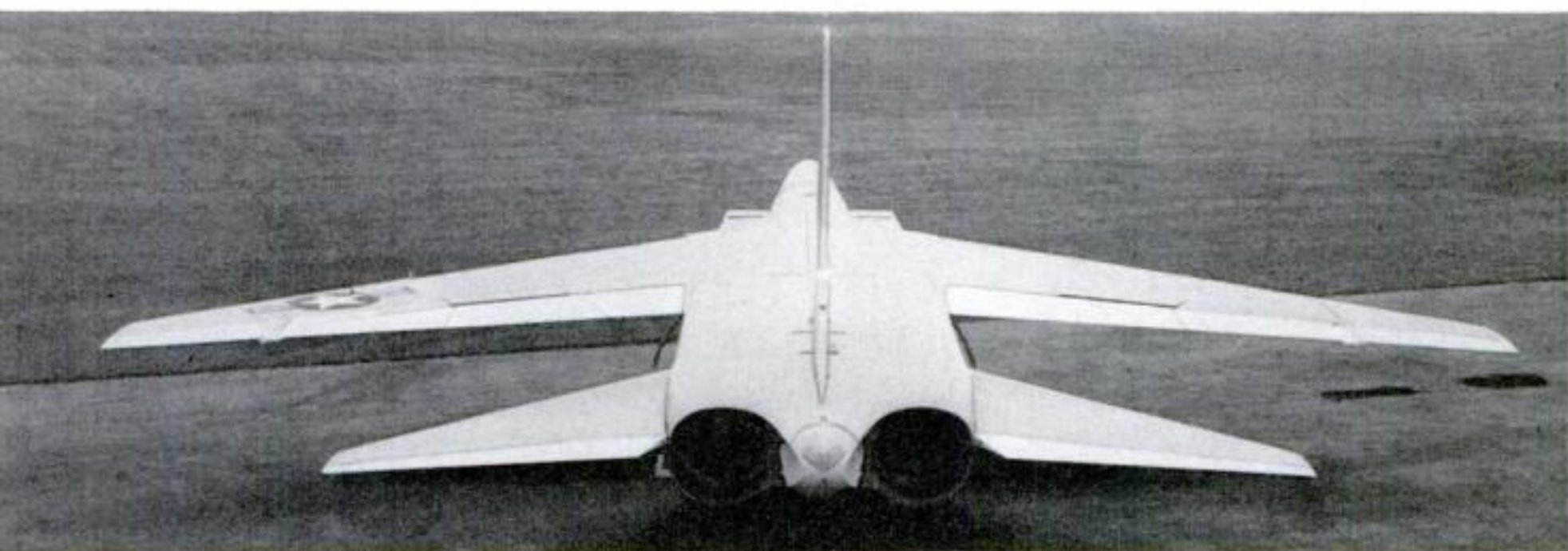
The A3J has other unusual attributes. Because it has tremendous range, the carrier from which it is launched can sit far outside the patrol areas of defensive land-based aircraft. It can fly so high that its pilot must wear a pressure suit for protection against explosive decompression. Yet it's built sturdily enough to skim the waves in turbulent air, out of sight of enemy radar.



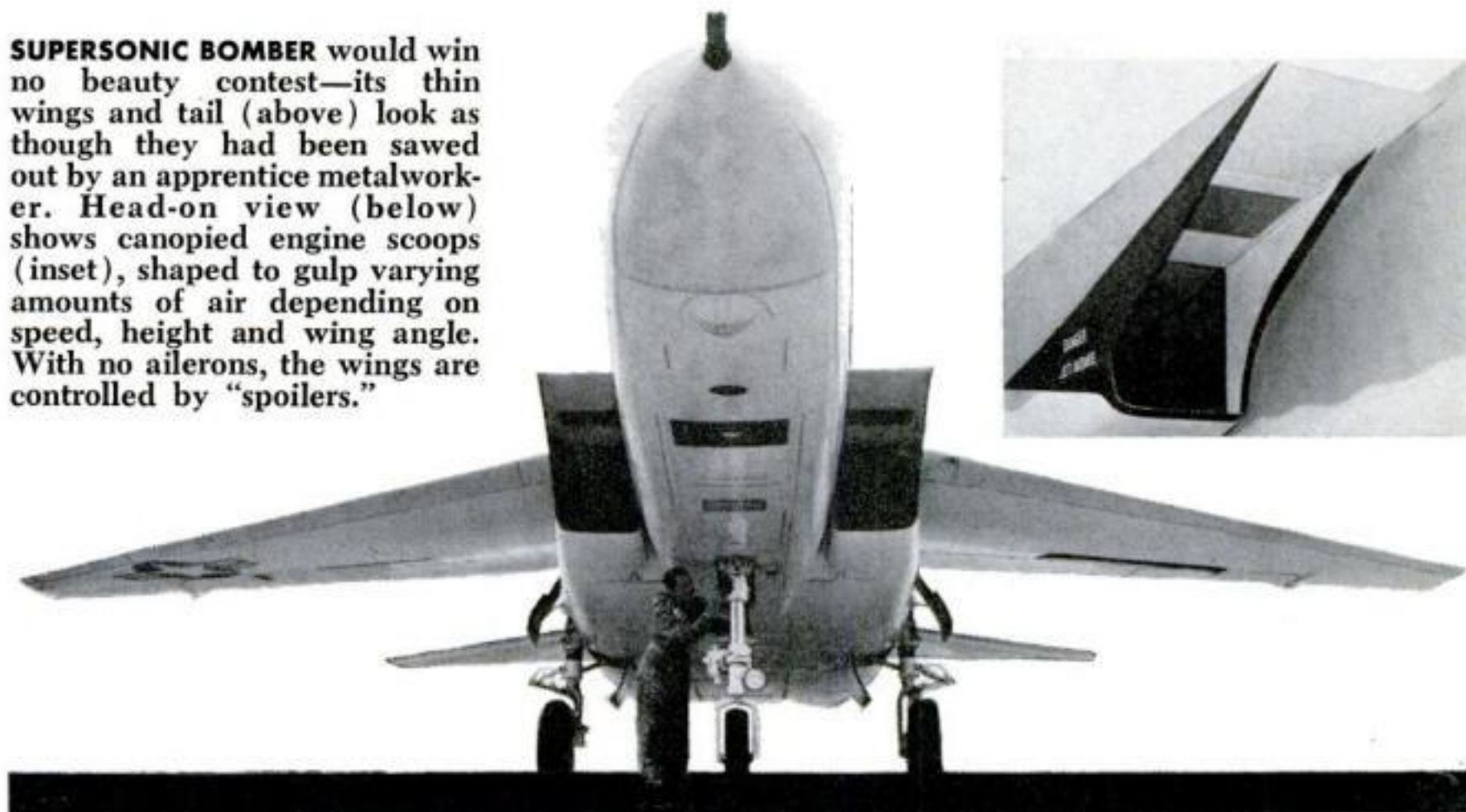
TAIL STINGER, a long tube serving as bomb bay, is tiny compared with coal-scuttle jet pipes at each side. Two GE J-79 engines produce 30,000

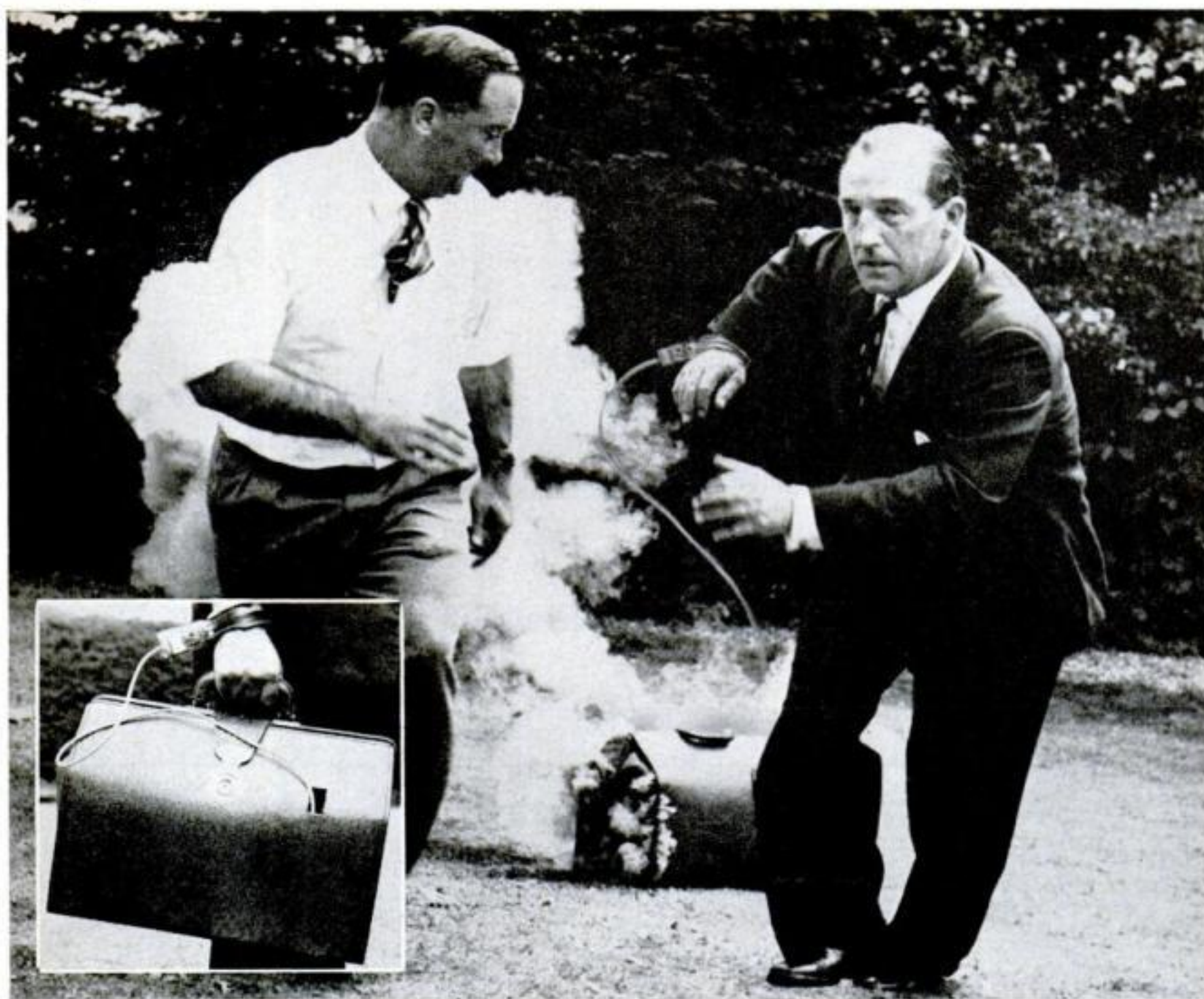
pounds of thrust. To insulate fuselage from jet heat, North American Aviation, manufacturer, gold-coats the titanium engine shrouds.

from Tail



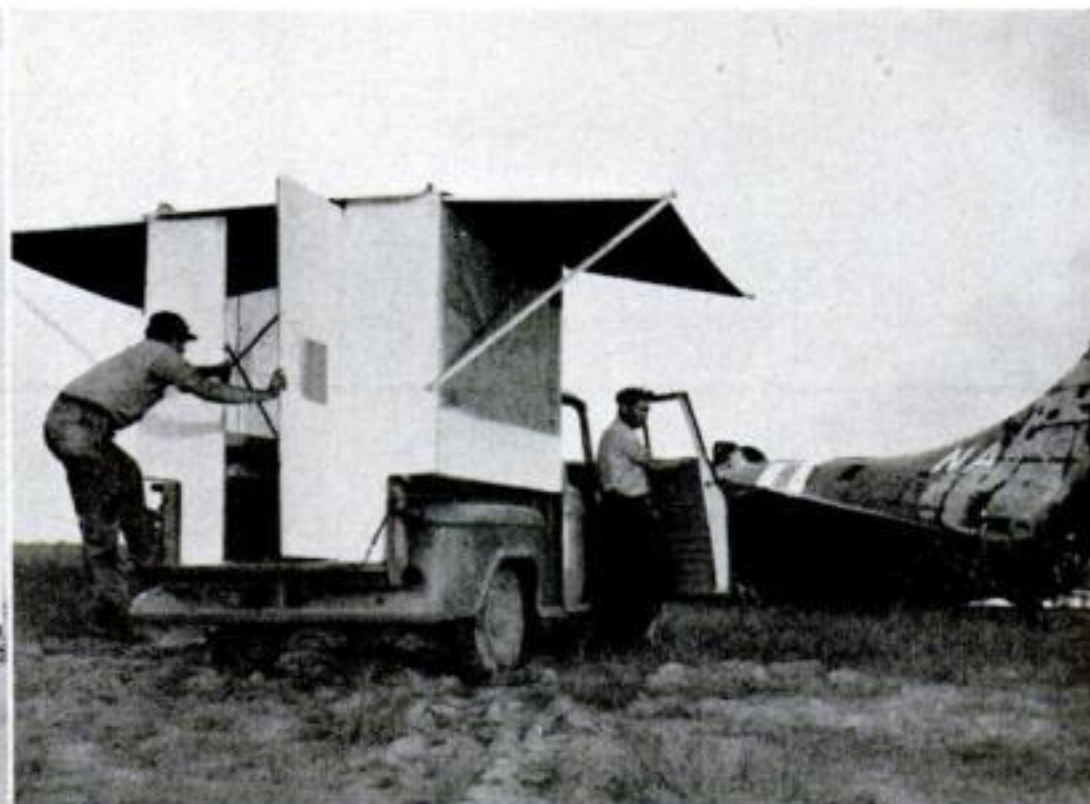
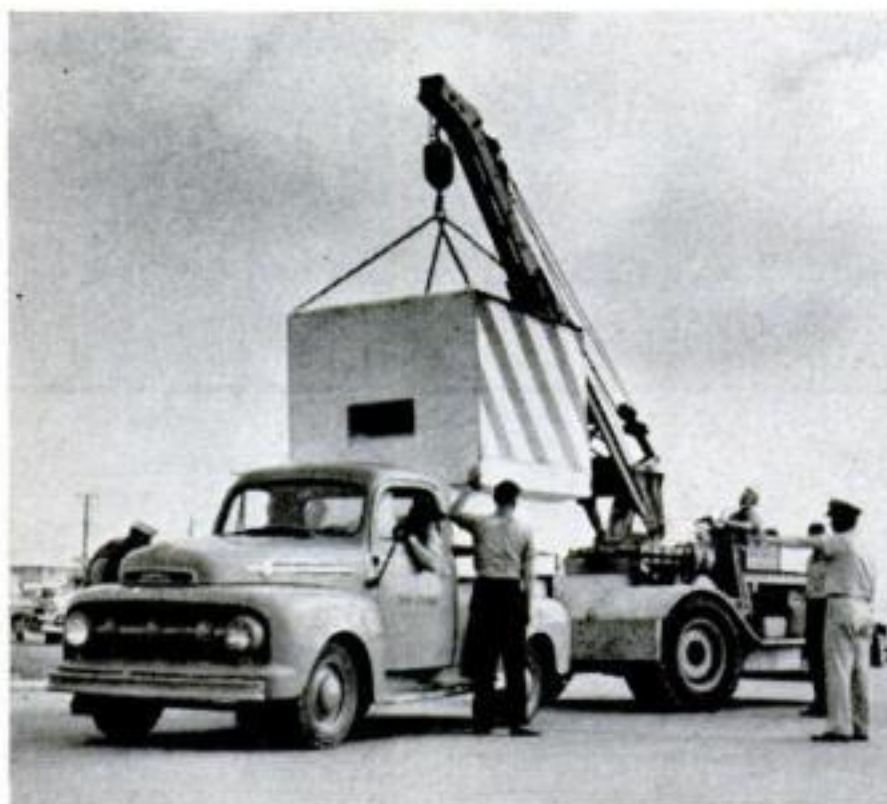
SUPERSONIC BOMBER would win no beauty contest—its thin wings and tail (above) look as though they had been sawed out by an apprentice metalworker. Head-on view (below) shows canopied engine scoops (inset), shaped to gulp varying amounts of air depending on speed, height and wing angle. With no ailerons, the wings are controlled by "spoilers."





SMOKE SCREEN. Here's a bag designed to balk bandits. Strapped to the wrist of a bank messenger, if snatched it triggers a crimson smoke bomb that dyes

money, securities and robber red. It's shown being demonstrated at Hoddesdon, England, before Scotland Yard detectives, bank and insurance officials.



PIGGYBACK TRAILER. Crews sent to guard planes crashed in remote areas now live in style. Before Navy maintenance men at Chase Field, Texas,

built this "home away from home," they often camped night and day on the ground—vulnerable to snakes, insects, sun and rain—until on-scene investiga-

FIREFLY TAILS. A scant spoonful of crystals in the tube at right is worth \$2,000. It's luciferin—the "cold light" of fireflies and a difficult chemical to obtain in quantity.

Johns Hopkins gets it from teams of children organized for firefly hunts in season, pays 30 cents per 100. Others are hired to remove tails from preserved bugs.

The crystals produce light for four years. John Hopkins uses luciferin in muscular-dystrophy and cancer research.



PENTADOME. The Army is experimenting with this five-domed air-supported structure as a missile storage and maintenance shelter.

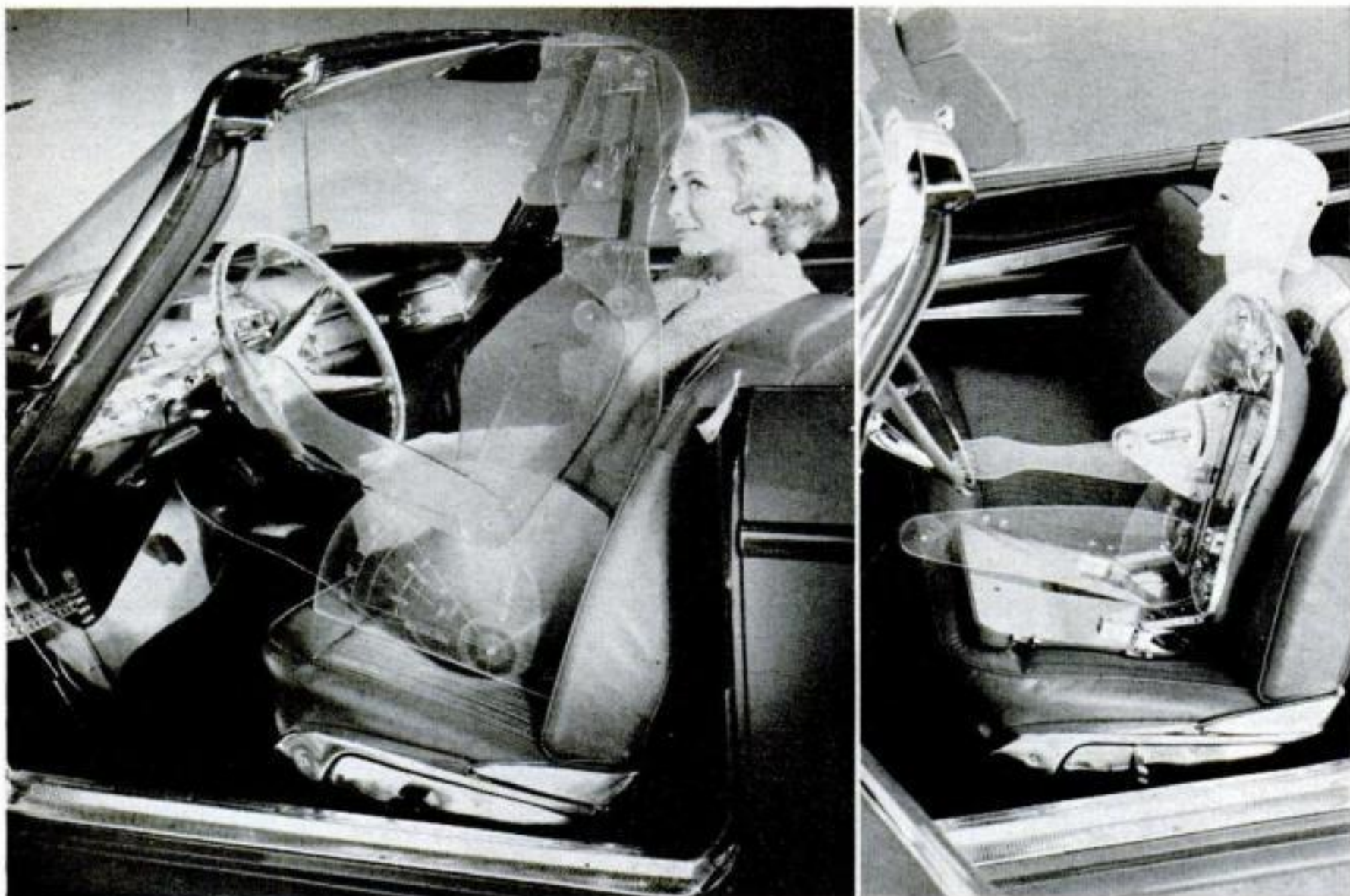
The big central hemisphere, 150 feet across and 85 feet high, will house the largest missile now built. Its four 100-foot appendages connect by revolving doors.



tions were finished. The cabin is made from scrap pipe and aluminum sheeting, is equipped with two comfortable bunks and a mounted two-gallon coffee contain-

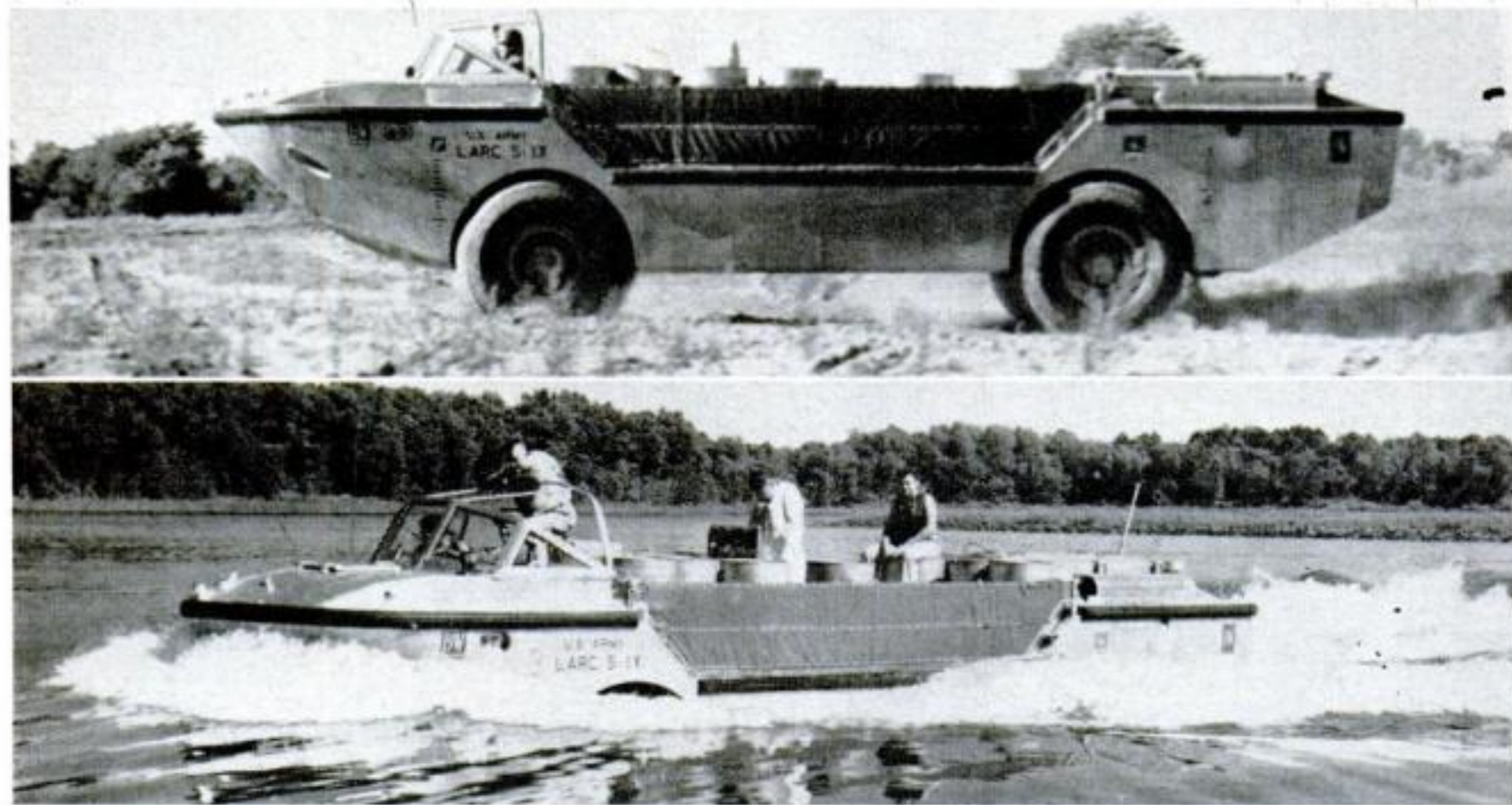
er. It is well ventilated, screened against insects. When word of a crash is received, it is hoisted onto a pickup truck and is one of the first to arrive.

PS Picture News



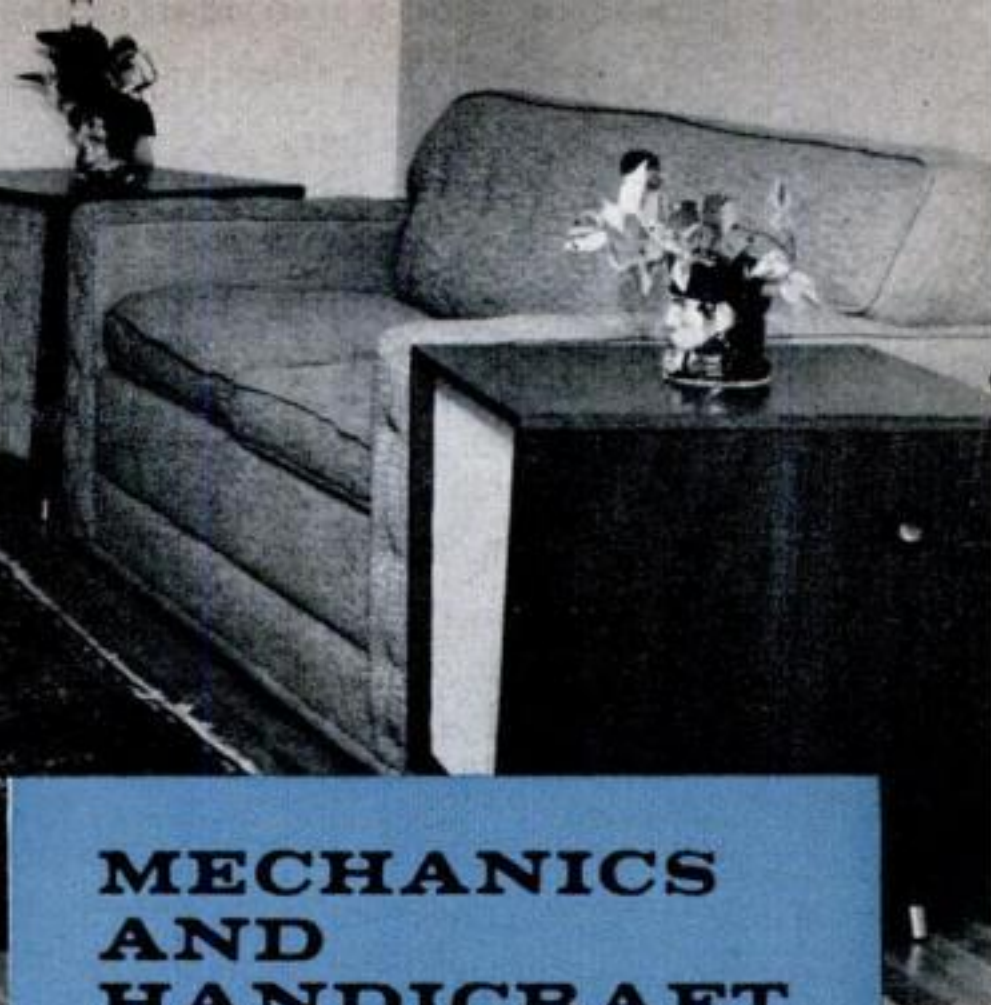
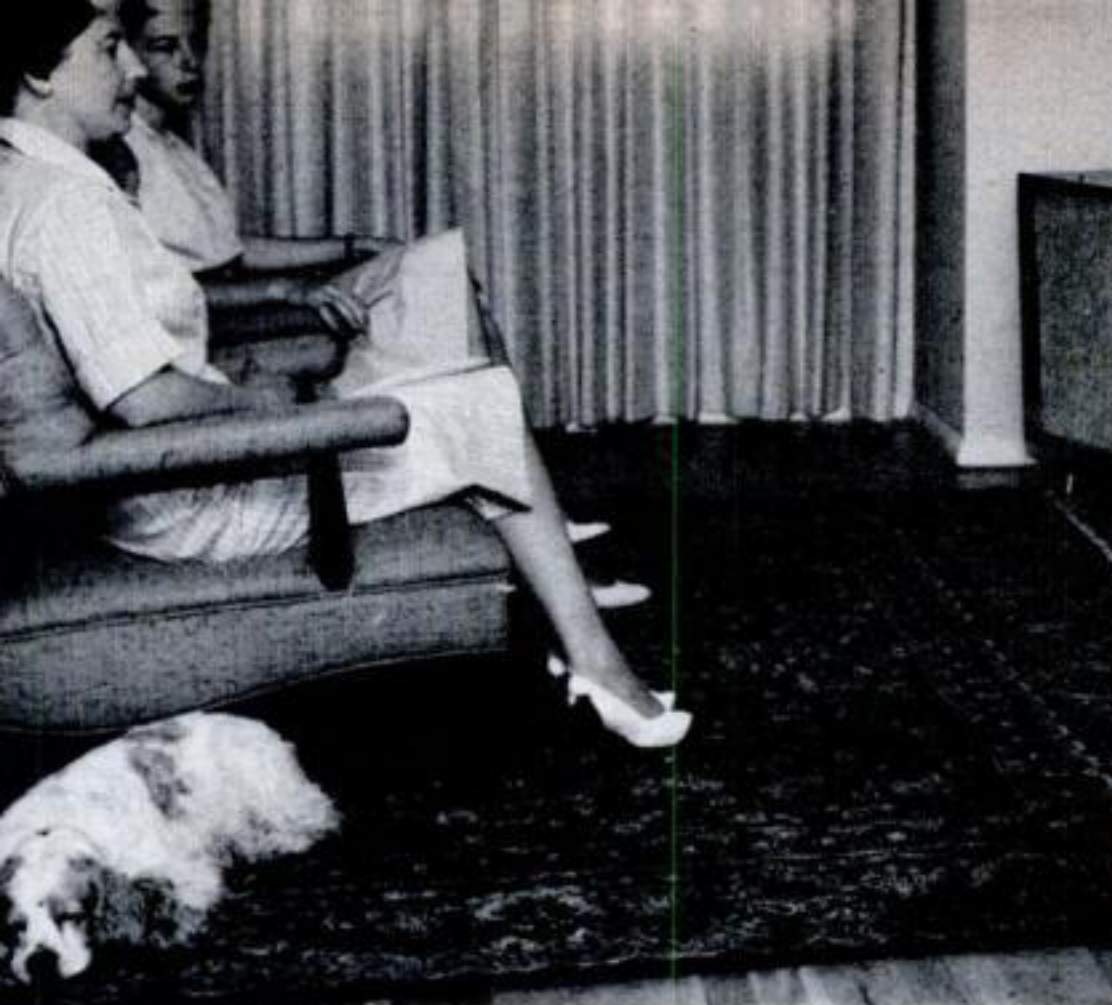
PLASTIC DRIVERS. You may be able to get in and out of your next car a little easier. To test seating comfort, Chrysler has built a six-foot "upper-limit" plastic man and a comparable lady com-

panion. They show designers how to fit cushion contours and angles to the human frame and set windshields for best vision—for both short drives and trips up to 150 miles. Here's hoping.



FACE-LIFTED DUKW. The famous World War II amphibious vehicle now has a modern replacement. It's built of aluminum and called the LARC-5 (for

lighter, amphibious, resupply, cargo, five tons). It will do everything the Army DUKW would do, but better—30 to 35 m.p.h. on highways, 10 m.p.h. in water.



MECHANICS AND HANDICRAFT

*Here's something pleasing
and practical in
hi-fi enclosures:*

Stereo Speakers in Twin End Tables

By Scott J. Saunders



WHERE can you place two bulky speaker enclosures for stereo hi-fi? Here's one answer. Build the two as matching end tables. Even if you're not planning a stereo system, you may want the speakers. You'll be amazed at how much two speakers can improve monaural reproduction.

The bass-reflex cabinets are designed around matched 12" three-way speakers. These are the popular, medium-priced kind that provide tweeter, woofer and

midrange speaker in one compact coaxial unit.

Outward-flaring cabinet sides get rid of the objectionable square-box look of many speakers and give the cabinets a slim, graceful appearance. Tops and sides—the only main parts that show—are made of $\frac{3}{4}$ " walnut-veneered plywood. Other veneers, such as birch, maple or mahogany, can be used to match any furniture style.

The enclosures are identical. There-

CONTINUED

151

fore you can save work by cutting duplicate parts in one operation.

Concealing the edges. The bottom, back and speaker baffle are made of $\frac{3}{4}$ " fir plywood. Since the baffle and front grille are recessed, it is necessary to face the exposed fir-plywood edges inside the sides and bottom with walnut veneer.

I did this by cutting a wide rabbet $\frac{1}{4}$ " deep inside the lips and gluing in strips of walnut veneer $\frac{1}{4}$ " thick. This is a little more work, but keeps the front-edge thickness to a pleasingly thin $\frac{3}{4}$ ". You can also cement veneer directly to the lips. In either case, the front edges should be faced with standard veneer strips to hide the plywood edges and match the cabinets' sides.

Sloping the sides. These flare outward at an angle of five degrees off vertical. To allow for this slope, cut rabbets in the lower edges of the sides at an 85-degree angle, instead of the usual 90. The sides of the bottom panel, sawed at a five-degree angle, will then fit perfectly into the rabbets, forming sturdy joints.

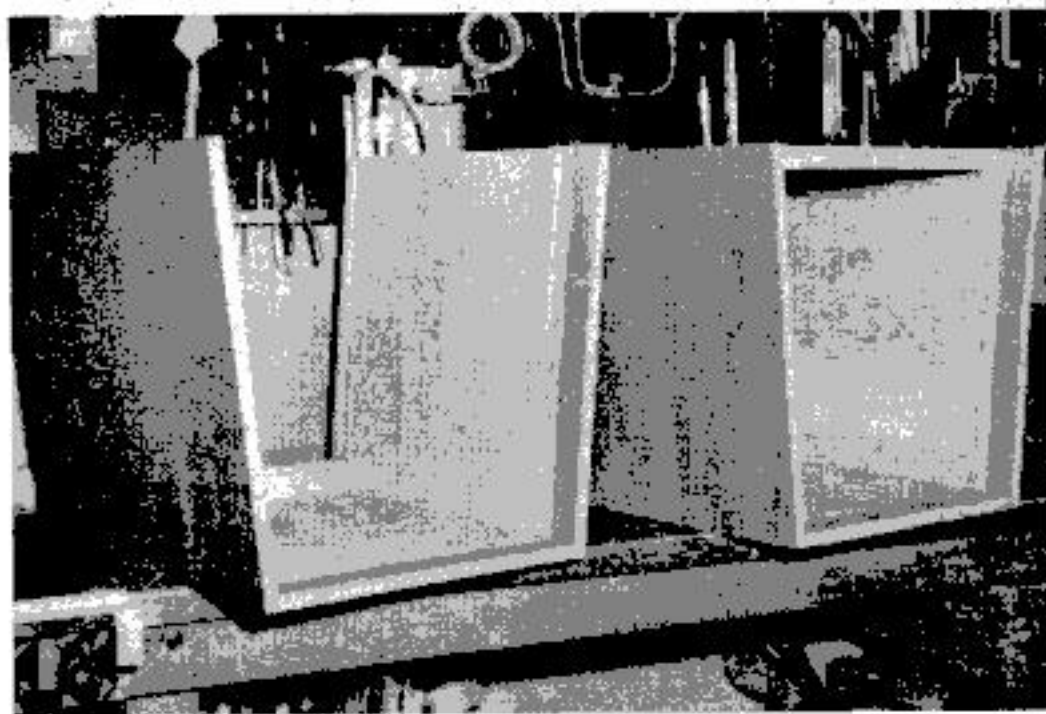
A snug fit all around is important to be sure you get vibrationless enclosures. To brace them further, stringers of $\frac{3}{4}$ " plywood are glued into dados cut in the top, side and bottom panels at both the front and back.

Set the front stringers $2\frac{1}{4}$ " back from the edges to support the recessed speaker baffle. Recess the rear stringers exactly $\frac{3}{4}$ " so that when the back panel is mounted against them it will be flush with the rear edges.

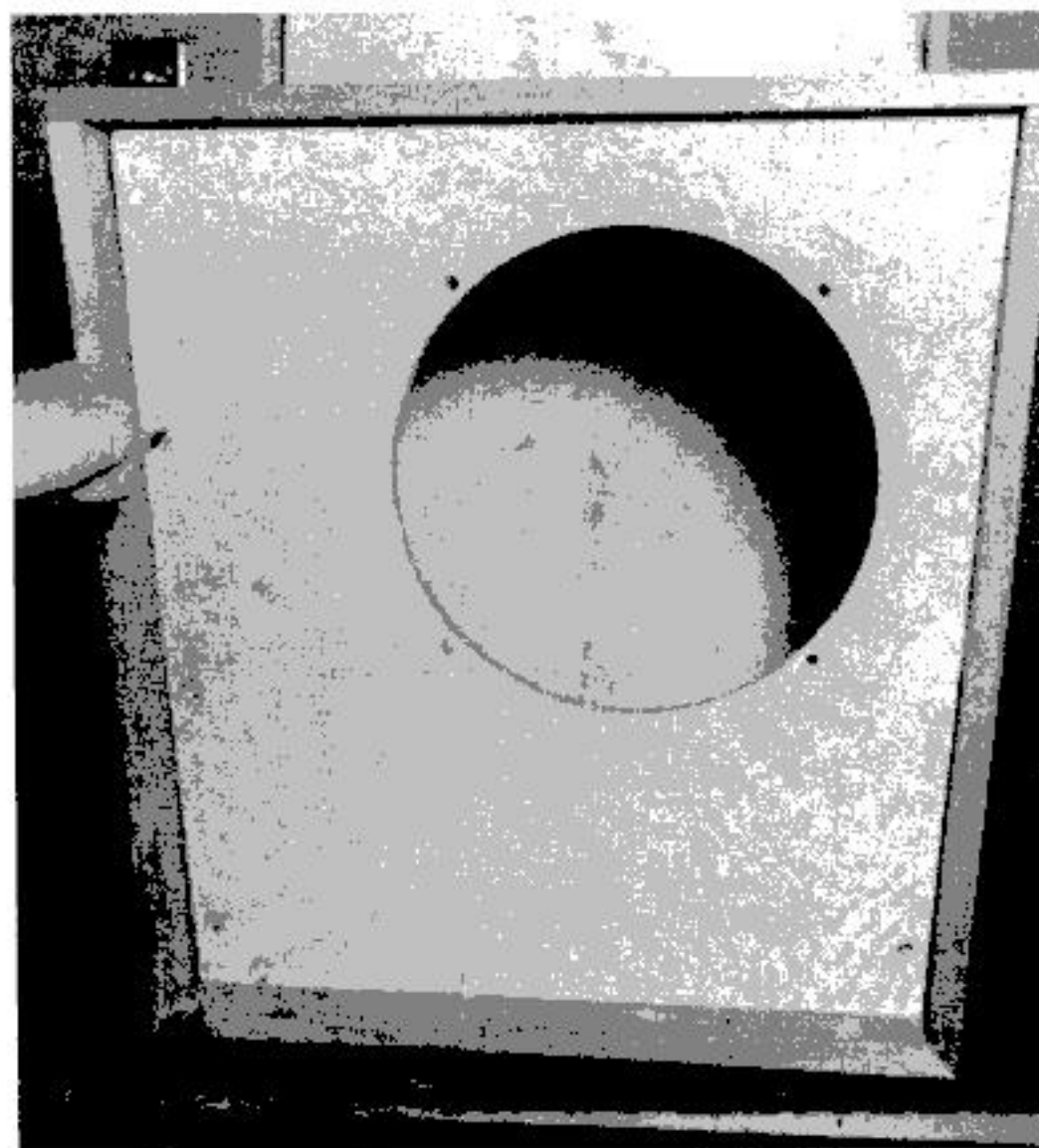
Begin assembly of the enclosure only after all cuts have been made. Before attaching the sides to the bottom, check to see that the angles are identical by setting a large triangle or square on the bottom with the vertical against the tapered side. The distance from the top of the triangle to each side should be the same. If it isn't, the enclosure will look cockeyed.

Firmly anchor the sides to the bottom with screws and glue. Then glue all front and rear stringers into the dados.

Check the walnut-veneer top to be sure it fits flush on all sides. Cover the exposed edges with matching veneer strips before it is put on. The top is then attached by spreading glue on the top edges of the sides and stringers. Pile heavy books on the top to hold it in place over-



IDENTICAL TWINS: Outward-flaring sides give these matched speaker enclosures a modern, graceful look. Note how inner front lips are faced with walnut veneer (dark strips) set into rabbets to match veneered plywood outside.

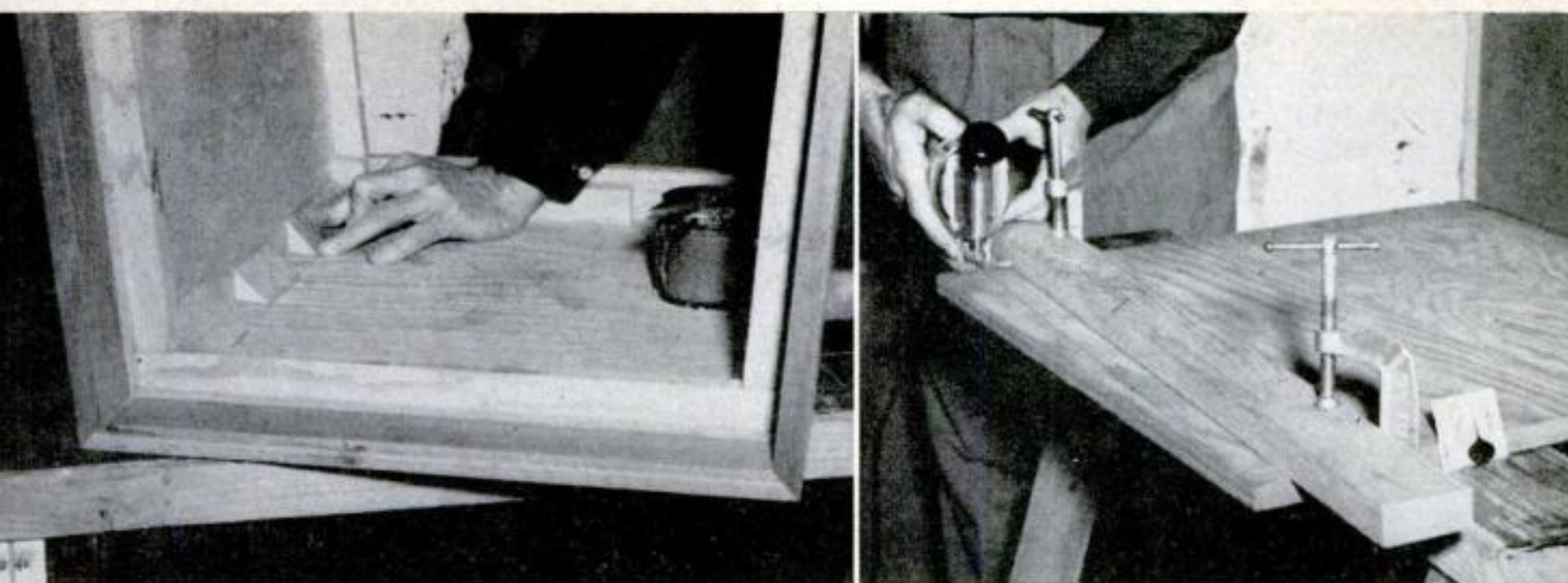


GLUE BLOCKS, much stronger than screws alone, are the secret of a solid, vibration-free cabinet. Use plenty along all joints. Remember that upper and lower blocks must be shaped to different angles to fit against sloping sides.

night, or until the glue sets thoroughly.

The speaker panel should be fitted into the recess and held in place by wood screws into the front stringers. Fasten the speaker to the panel with four $\frac{1}{4}$ " bolts, lockwashers and nuts.

Tuning the port. A bass-reflex speaker enclosure requires a port to increase bass-



SPEAKER BAFFLE must be permanently mounted with glue and screws against the front stringers to insure rigidity. As speakers are heavy and hard to hold, mark and drill their bolt holes before you install baffles in the enclosures.

OUTWARD FLARE OF SIDES is the only tricky construction to remember. Angle at top is 85 degrees, while one at bottom is 95. See detail

frequency response. You'll find that opinions vary on whether the opening should be located in the front, bottom or back of the enclosure. While there are advantages in each location, the greatest advantages will be obtained by placing the port in the rear.

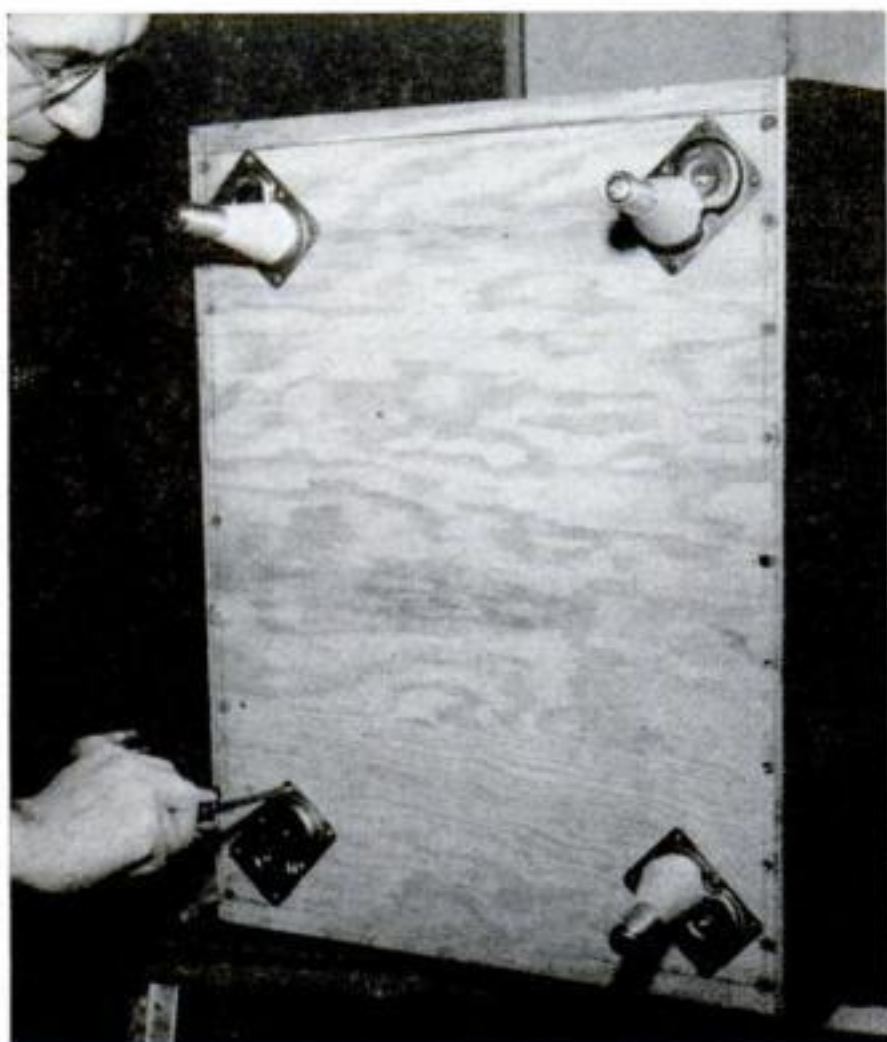
determined by the volume of the enclosure. In these matched enclosures, the volume for each is 5.3 cu. ft. By using the Popular Science Test Record No. 1, the best port size was found to be 40 sq. in. (Later it was discovered, too, that setting the enclosures about 8" away from the wall increased overall effectiveness.)

As long as you buy 12" speakers of similar design and don't change the cabinets' dimensions, you can use the size port shown here without bothering to tune your own. With different speakers, it's not difficult to establish correct port size by using the PS test record.

The grille-cloth frame was made $\frac{1}{8}$ " shy on all sides to allow clearance for the Mellotone plastic cloth. A $\frac{1}{4}$ " rabbet was cut into the back all around the frame so that the grille cloth could be

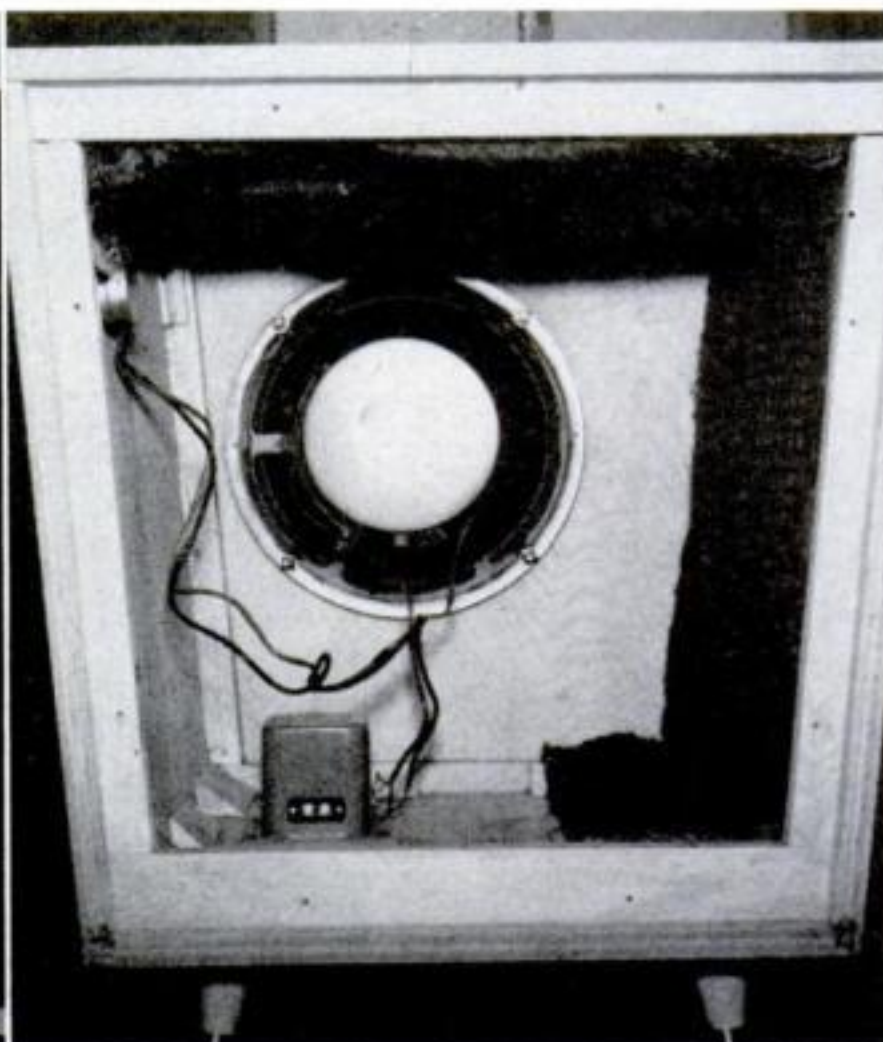
stapled into a recess. The frame is held against the speaker panel with screws turned from the inside before the back is put on.

The back panel is screwed into the rear stringers. A honey-colored walnut finish was achieved by sanding with 8/0 garnet paper, filling the open grain with natural paste wood filler, and applying six individual hand-rubbed flat lacquer coats. This produced a beautiful professional finish that is well worth the effort.



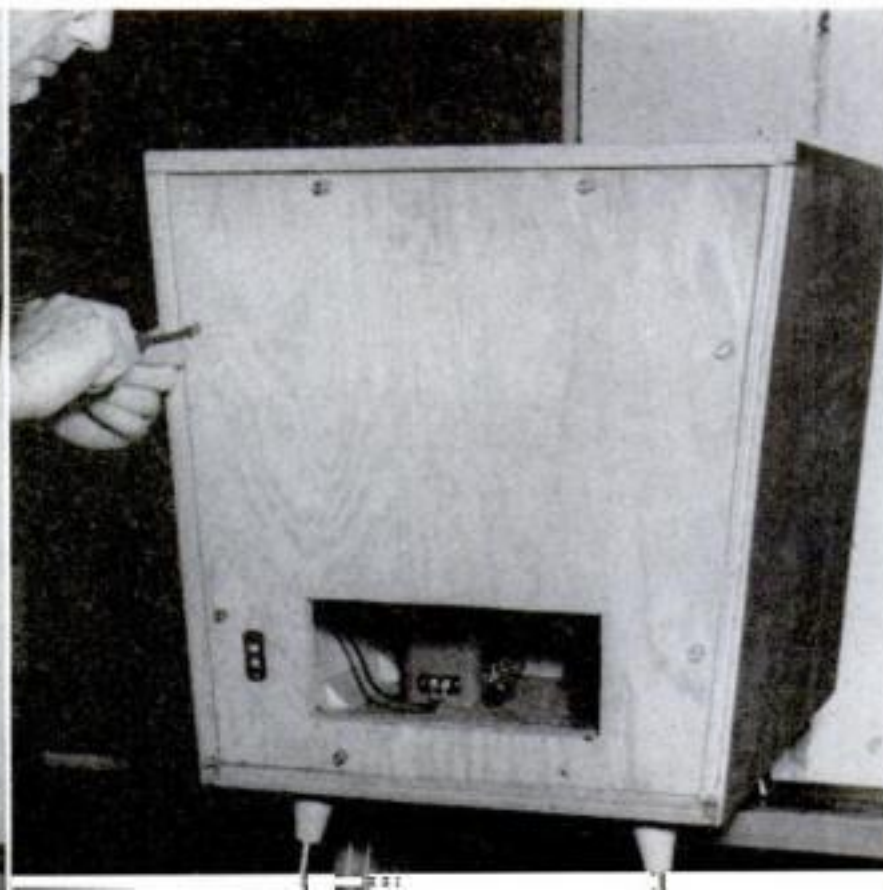
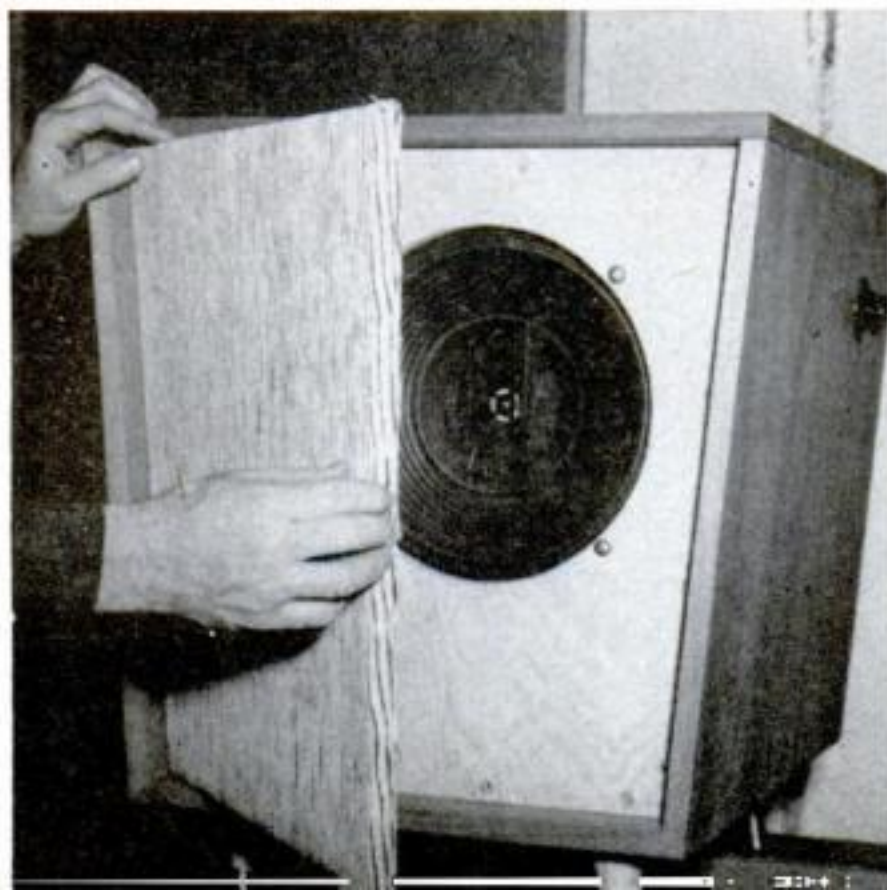
STUBBY LEGS only 4" long give cabinets a modern look, also make them appear less cumbersome than solid bases would. Two-way brackets here, available at hardware stores, give you a choice of mounting legs straight or at a slant.

SPECIAL OPEN-WEAVE GRILLE CLOTH (do not use ordinary material) is stapled to frame of $\frac{3}{4}$ "-by-1 $\frac{1}{2}$ " plywood strips. Following today's general practice, speaker is mounted with tweeter vertical for best dispersion of highs.



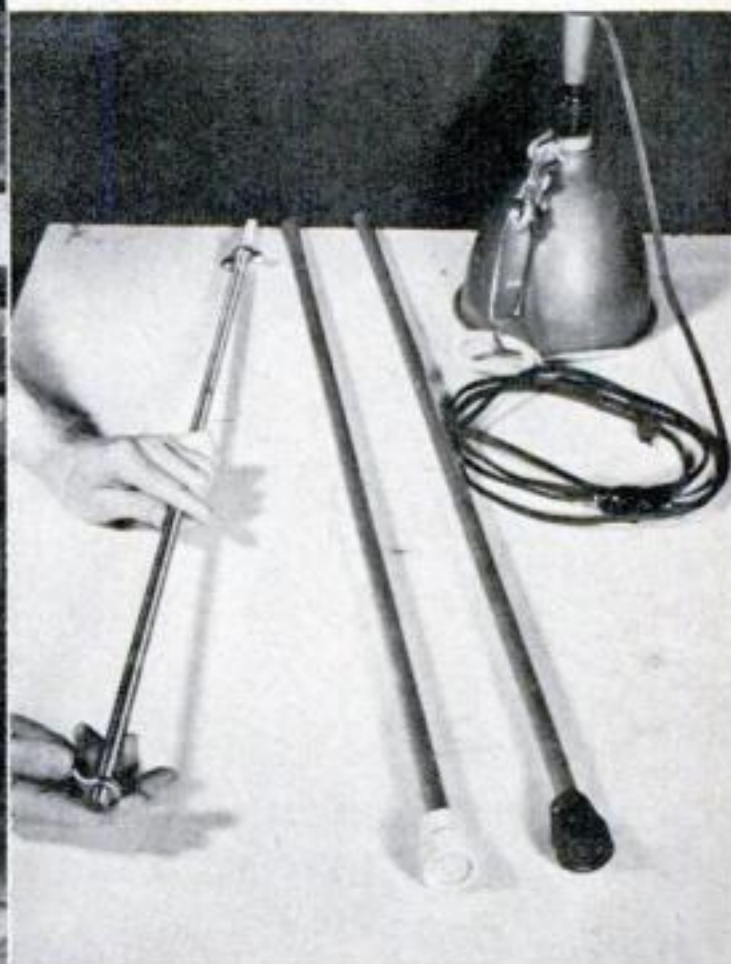
SOUND-ABSORBING MATERIAL is stapled under top, down one side and also across back panel so that it faces all opposing areas. Level control is mounted so knob can be reached from the outside, and crossover is screwed to the bottom.

REAR PANELS, last to go on, are screwed but not glued so they can be removed for access. Bass-reflex port must be cut to exactly 4" by 10" and located as low as possible for best results. The speaker terminals are to the left of the port.



Short Cuts and Tips

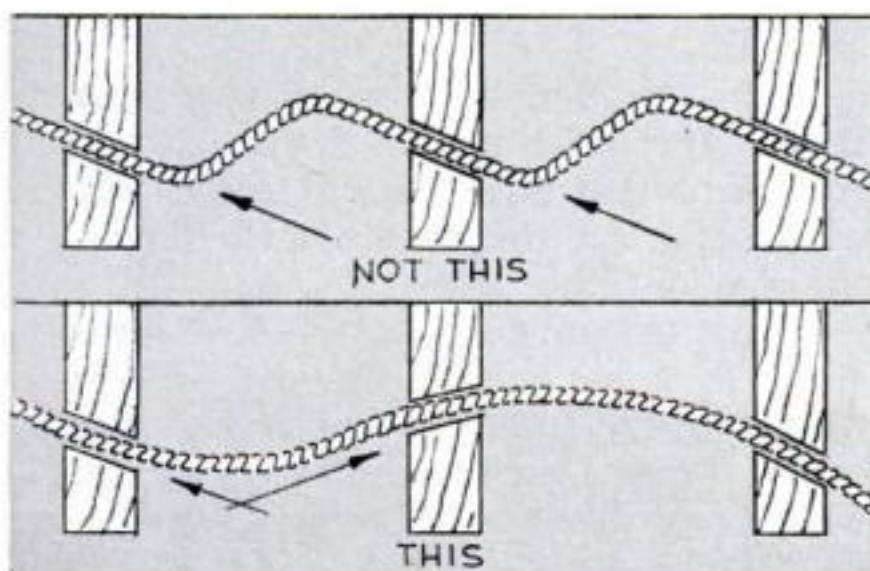
FROM PS READERS



Ceiling-High Light Stand from Aluminum Tubing

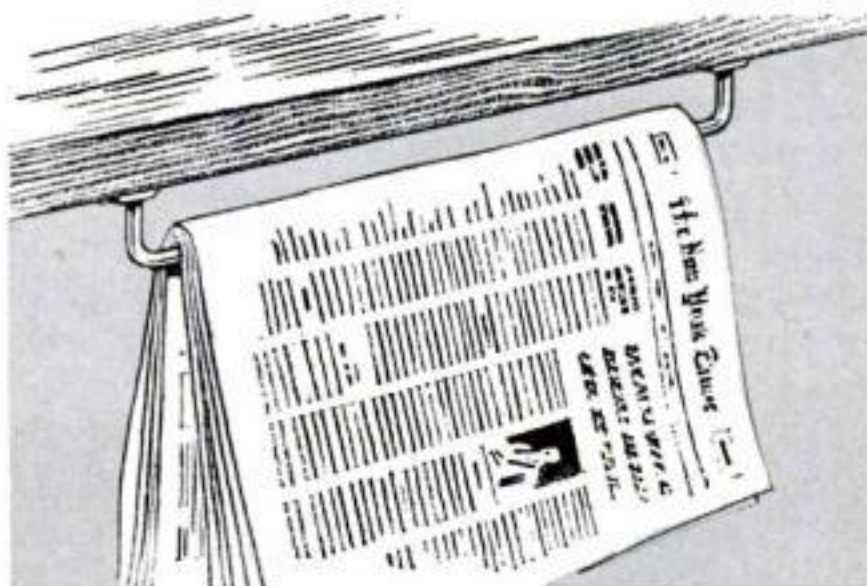
THIS lightweight pole holds a clamp-on floodlight at any height between floor and ceiling. It's assembled from two three-foot lengths of $\frac{3}{4}$ " aluminum tubing, a 3'-long $\frac{1}{2}$ " threaded rod, a pair of $\frac{1}{2}$ " wing nuts and two rubber crutch tips. To use the stand, screw the wing nuts on the rod, wings together. Then slip a tube

over each end. Hold the assembly upright and unscrew the wing nuts until the tubes are tight against floor and ceiling. Use a white crutch tip on the ceiling end of the pole, a black one on the lower end. The color difference will remind you not to swap ends and transfer floor dirt to the ceiling.—Paul Corey, Sonoma, Cal.



Boring for Electrical Cable

WHEN you must make angled holes for electric cable, drill adjacent joists or studs from their common side. This aligns the holes, reduces bends and friction and makes it easier to pull the cable through.—G. E. Eckland, Drexel Hill, Pa.



Keeping Papers Handy in Shop

OLD newspapers are invaluable for protecting workbench or floor during messy paint or paint-removal jobs. Keep them handy by folding them over a towel bar attached to the underside of the bench.—George Henry, Madison, Wis.



METALLIC DIVIDERS between rare-wood insets produce a real conversation piece. Add legs and the piece can double as a card table.

Using plastic aluminum in place of standard wood dividing strips adds up to—

Making an Inlaid Chessboard the Easy Way

THERE'S not an open joint in this inlaid chessboard. Yet extreme accuracy isn't needed for cutting and fitting the inlay squares.

Plastic-aluminum filler takes up any slight imperfections in the fit, and hardens into metallic strips that can be buffed bright. The result: rare-wood squares from all over the world, locked together with shiny aluminum.

A large assortment of rare wood is easy to get. Supply houses, such as Albert Constantine and Sons in New York, and Craftsman Wood Service in Chicago, sell inexpensive rare-wood sets to acquaint customers with the various types. These sample pieces are large enough to cut into the $2\frac{1}{2}$ " squares needed for the chessboard. Thicknesses of the samples may vary. The squares shown were cut from $\frac{1}{4}$ " stock, but the

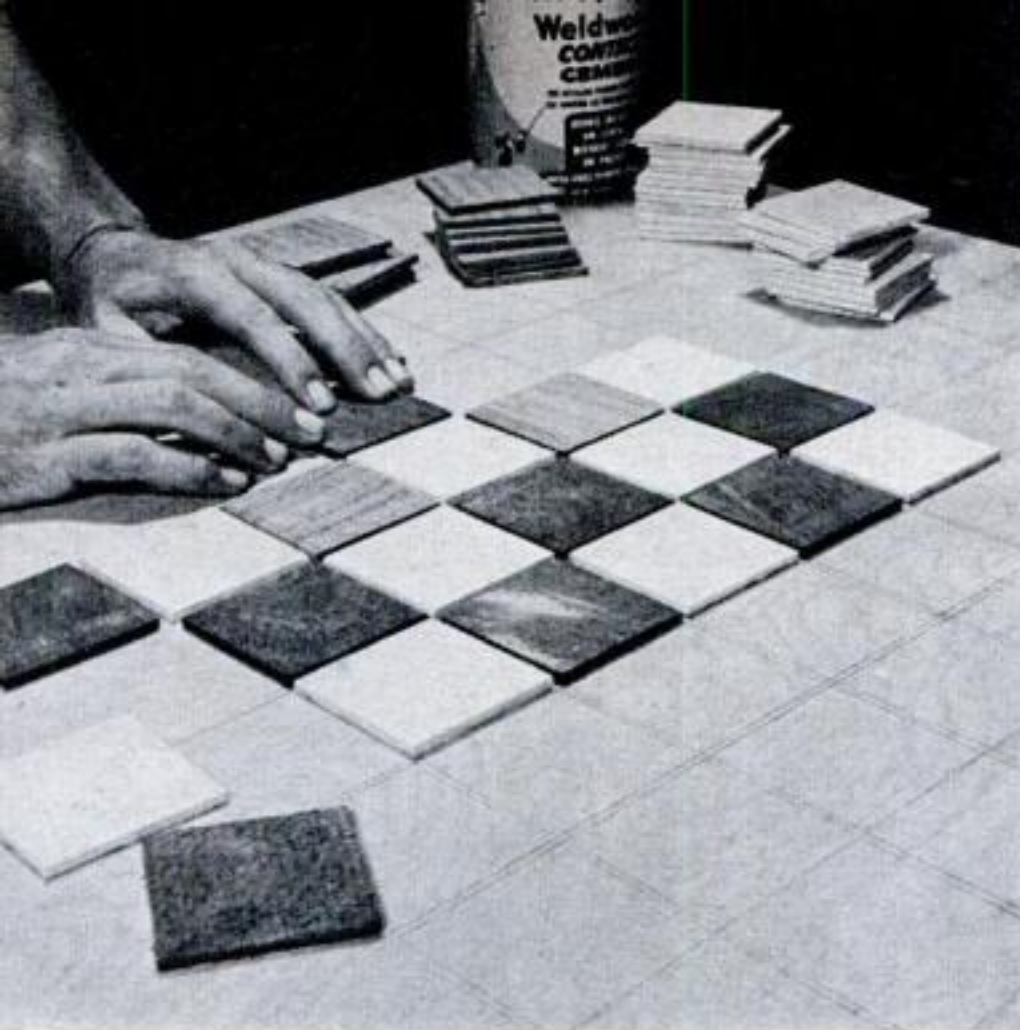
popular $\frac{1}{28}$ " inlay samples can be used as well.

You may find dark wood predominating in the assortment. If you come out short on light squares, cut some from a piece of birch or maple and distribute them about the board.

A tip before cutting: Each sample is marked, so make notes on what wood you use in each square. You're sure to be asked when friends admire the board.

Lay out the spaces and $\frac{1}{8}$ " joints on a $29\frac{3}{8}$ "-square piece of $\frac{3}{4}$ " plywood. Carefully set the inlay squares and border strips on the plywood with contact cement. A $\frac{1}{8}$ " wood strip temporarily placed between rows of squares helps to keep joints straight.

Press the plastic aluminum into the grooves, filling them a bit higher than the surface of the wood. When dry, sand the

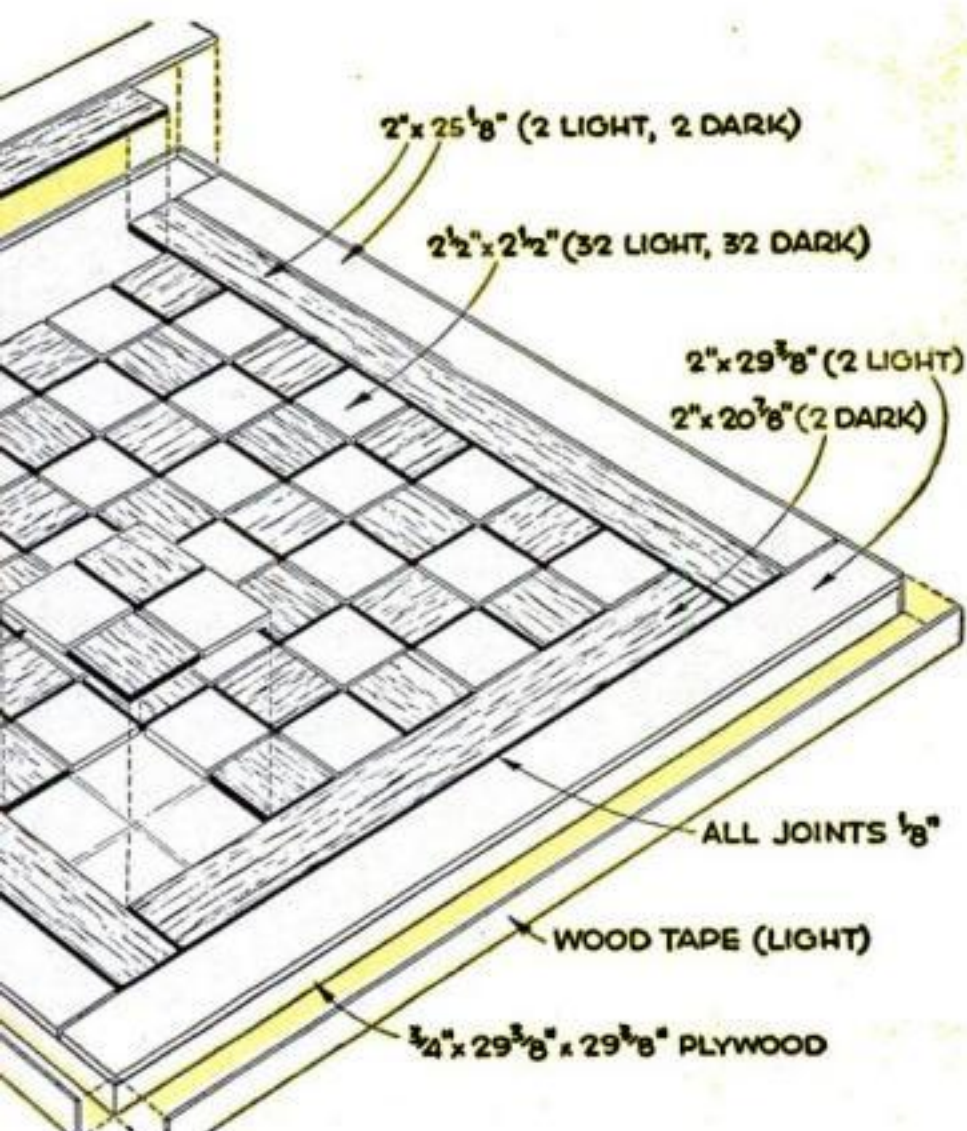


LAY OUT THE ARRANGEMENT on $\frac{3}{4}$ " plywood. Fine-wood samples are cut to fit precisely over the slightly separated squares.

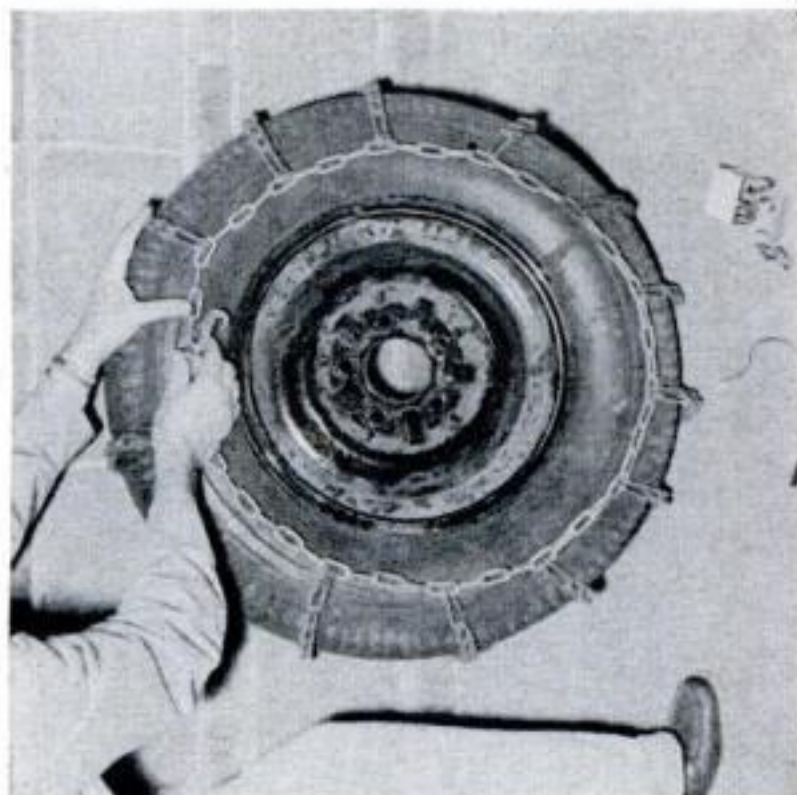
entire surface flush and smooth. Cover the edges of the board with wood tape or thin strips of wood.

Several coats of clear resin sealer will show up the wood best. Rub each coat lightly with fine steel wool and polish the final coat with paste wax.

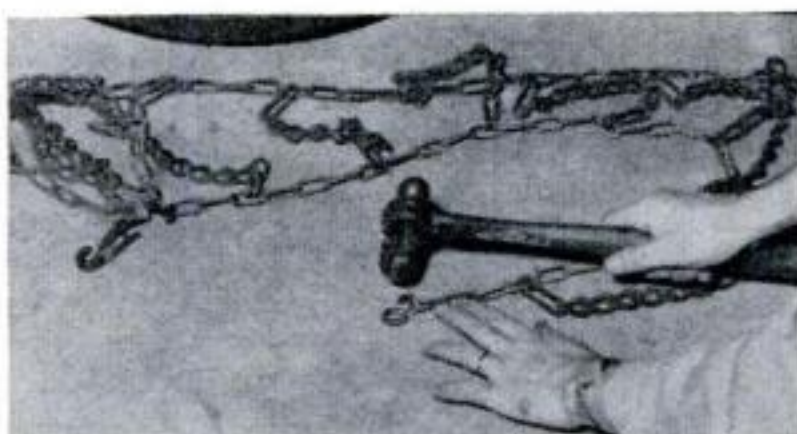
A set of legs screwed to the underside of the chessboard makes it a table for other games.—*R. J. DeCristoforo.*



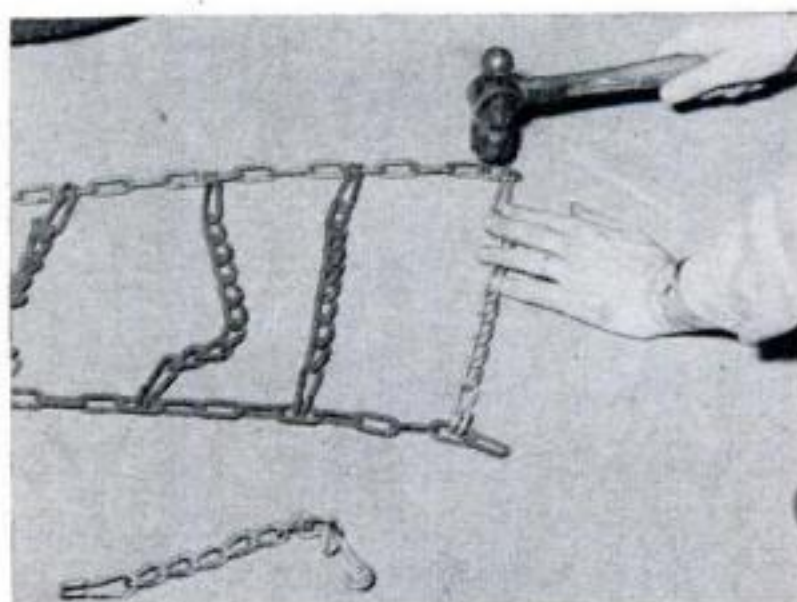
How to Adapt Chains to Tires of New Size



1 MEASURE THE CHAIN on the wheel it is intended to fit, as the first step in adapting old chains to tires of different size. You can do the job with standard chain-repair parts.



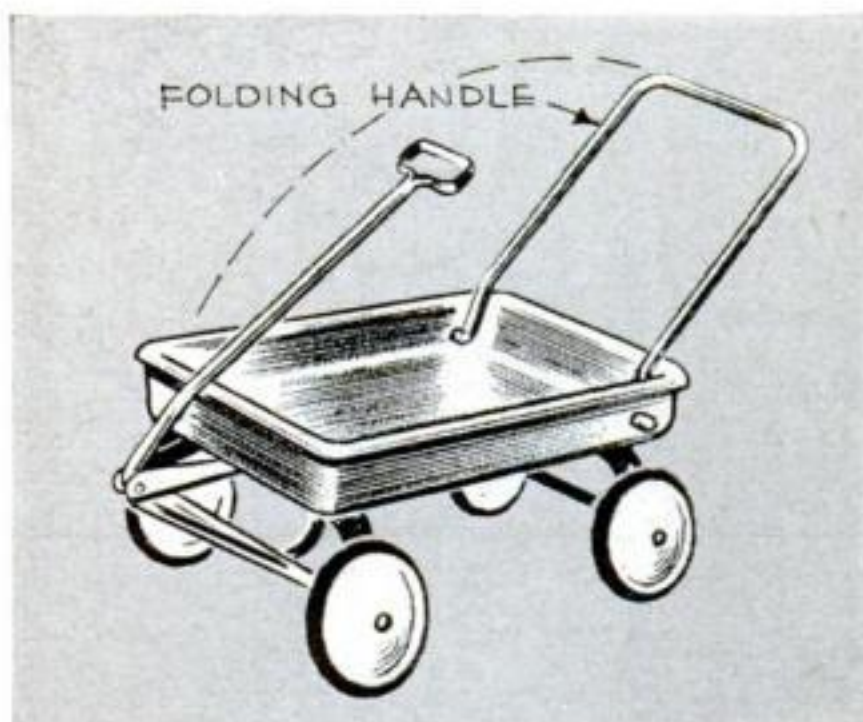
2 EXTEND THE LENGTH with standard repair links if necessary. To shorten, hacksaw through links, take out number required.



3 REPLACEMENT CROSS CHAIN will be needed if the chain is appreciably lengthened. These are available for all sizes of chain.

Short Cuts and Tips

FROM PS READERS



Pusher for Coaster Wagon

JUNIOR may do the steering, but an adult provides the power and keeps a coaster wagon under safe control with this folding handle. A steel rod, bent as shown, snaps into holes drilled through the wagon sides. When not in use, the pusher folds forward to rest inside the box. It won't interfere with normal use.—*G. E. Henderson, Oshkosh, Wis.*



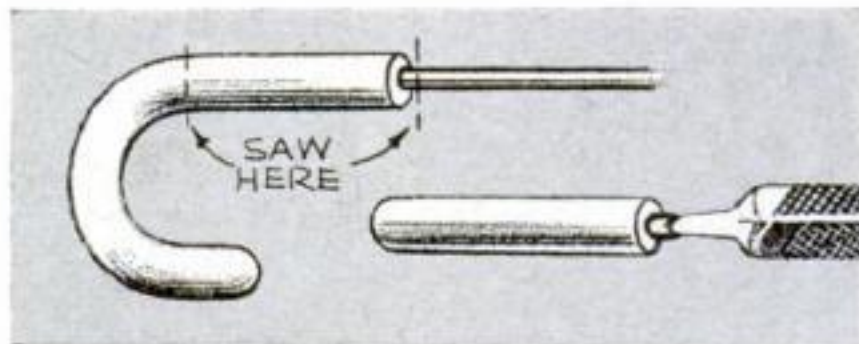
Rubber Bed for Shaver

TO SAFEGUARD my shaver in the medicine cabinet, I keep it in a rubber soap dish. Now the shaver can't be accidentally knocked off the slippery shelf.—*Arthur R. Tanner Jr., Poughkeepsie, N.Y.*



Covering Wall-Lamp Wire

EVEN on the neatest pin-up wall lamp, the wire down the wall is no thing of beauty. You can hide it by pulling the wire taut and stapling it flat. Then cover with masking tape and paint the tape to match the wall. This is even more effective on papered walls where you can cover the wire with a strip of matching wallpaper.—*H. E. Cleary, NYC.*



File Holder from Old Umbrella

You can make a serviceable file handle from the handle of an old umbrella. Use a hacksaw to cut off the umbrella shank about $\frac{1}{8}$ " or $\frac{1}{4}$ " from the handle. Then saw the handle to the length you desire. Drive the tang of the file into the hollow steel shank stub; the metal ferule grips the file firmly and won't slip.—*A. E. Bryant, Lynchburg, Va.*

▶▶▶DON'T throw away those candle stubs; save them to make snow shoveling easier. Rub one over a warmed snow-shovel blade; wet, sticky snow will slide right off.—*Keith George, Syracuse, N.Y.*

**Here's how to avoid
troubles that may occur
in a home plumbing system—**

When Water Runs Uphill

**By Ralph Treves
and Hubert Lockett**

ORDINARILY one expects water to flow out of a water pipe when the faucet is turned on. It is such a familiar experience that most people will think it silly to suggest that a water-supply pipe can become a dangerous two-way street. But waste water from a sink, bathtub, washing machine, even a water puddle in your lawn, can flow back *into* your fresh-water lines, causing a health hazard.

It's an old story to public health officials and sanitary engineers. They've tagged the menace with various names—backflow, cross connections, back-siphonage—all of which apply to aspects of the water-pollution problem. To preserve the purity of your drinking water, they've devised plumbing codes. These spell out the safeguards your plumber must adhere to in the original installation, and that manufacturers must observe in the design of water-using equipment. But there is little they can do to protect the home owner from his own ignorance when he starts adding little



CONTINUED

159

conveniences to his basic water-supply system, or is tempted to bypass existing protective measures.

One expert, George Burke Jr., Chief of the Water Supply Section of the National Water Pollution Control Program, points out: "A great deal of work and expense is involved in making sure the water supplies of our cities are safe and wholesome. All this can be destroyed if the distribution system is not continuously protected from pollution . . . Waterborne diseases have been virtually eliminated in this country *but a few outbreaks still occur each year*. Most of these result from inadequate protection of the water in the distribution systems."

Every time you hook up a garden hose or slip a shampoo spray over the bathtub spigot, you may be tampering with the basic protection of your water system. That's the insidious part of the problem—the possible offenders are so commonplace.

There are many possibilities around

the home for innocently setting up the conditions that can cause back-siphonage. But they all have one condition in common: The outlet of the pure water system can be submerged in contaminated water. In any situation in which it is possible for a solid column of water to exist between waste water and the supply system, you have a chance of pollution.

How it works. Anyone who has used a siphon hose to borrow gas from his car's gas tank knows the basic principles of backflow. What is not so readily apparent is how siphoning can take place in a water-supply system.

First, let's consider a special case—a common situation that occurs with that familiar chore of replacing a faucet washer at the kitchen sink. You shut off the water pressure at the main cut-off valve so you can work on the faucet. But water keeps dribbling from it. Now, to let air into the pipes so they can drain, you open the faucet in an upstairs bathtub.

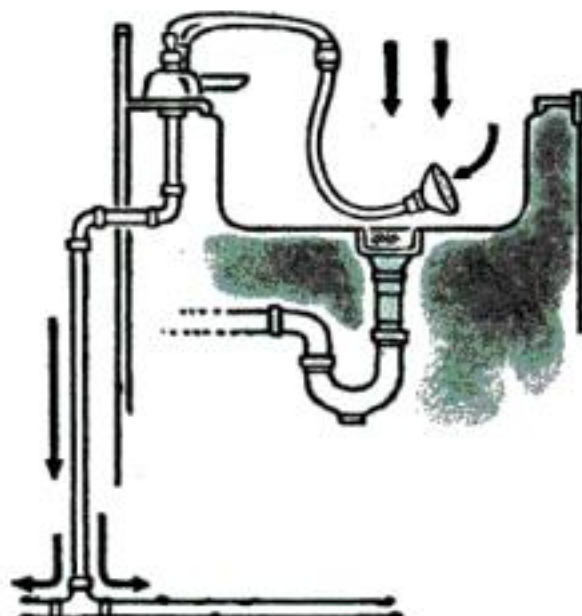
When the sucking noises stop, you

How siphonage can cause backflow



HOME EXPERIMENT shows how a siphon can start automatically. Place a bucket above an outside tap. Fill it with a garden hose, then disconnect hose from tap.

THE SAME ACTION occurs if you submerge a sink spray in the dishwasher. A drop in line pressure then has just the same effect as disconnecting the hose.

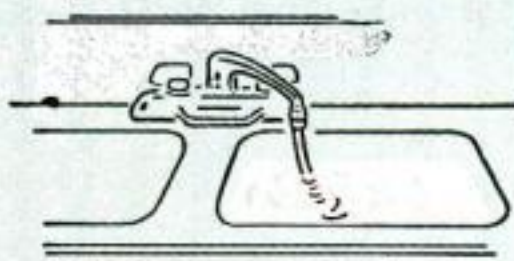


MOST people have used an ordinary siphon to transfer liquids from one container to another. And everybody knows that sometimes it takes a bit of doing to get the siphon started. You might suck on the siphon tube or you might fill the tube and cap both ends until the inlet can be submerged.

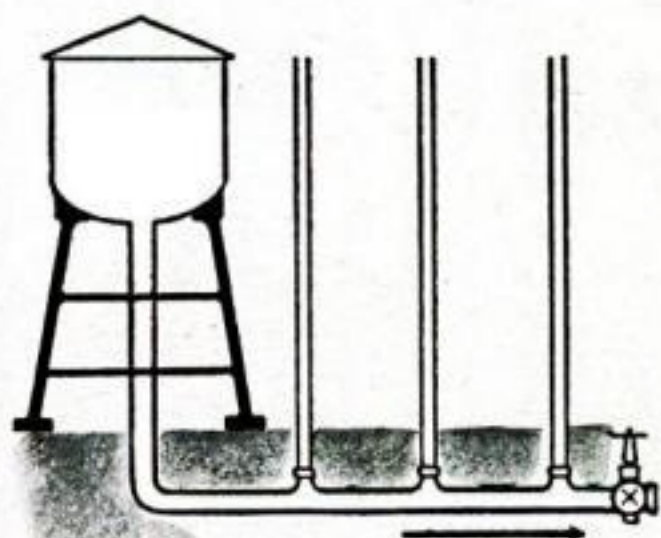
What you may not realize is that in a closed system of pipes such as your

plumbing, a siphon can start all by itself. In the experiment at left, water will drain back through the hose when it is removed from the faucet as long as the other end of the hose is submerged. In the common household situation at right, even a momentary drop in line pressure can cause contaminated water to be siphoned into the pure water supply without your being aware of it.

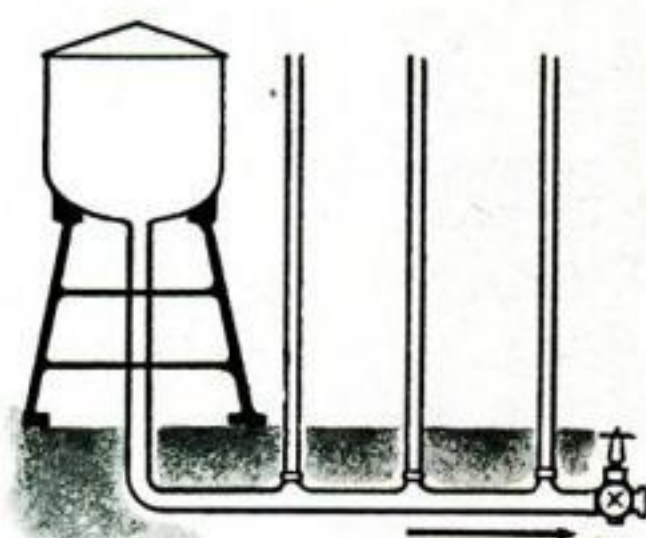
Avoid these common household situations that invite back-siphonage



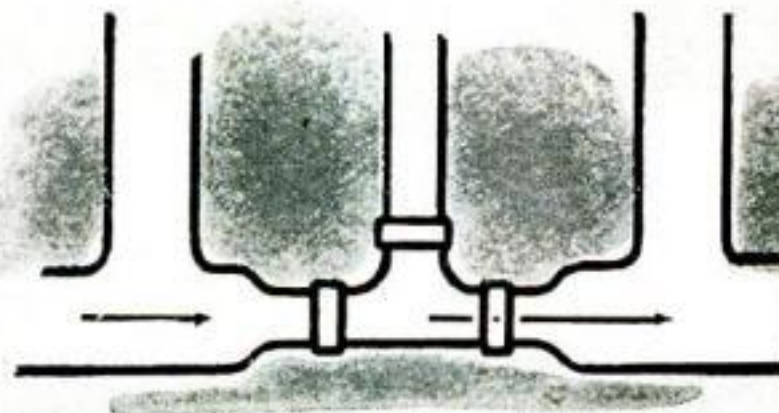
How water-supply pressure can drop



PRESSURE WILL DROP if a system must deliver more than it was designed for. Branches may even be subjected to negative pressure.

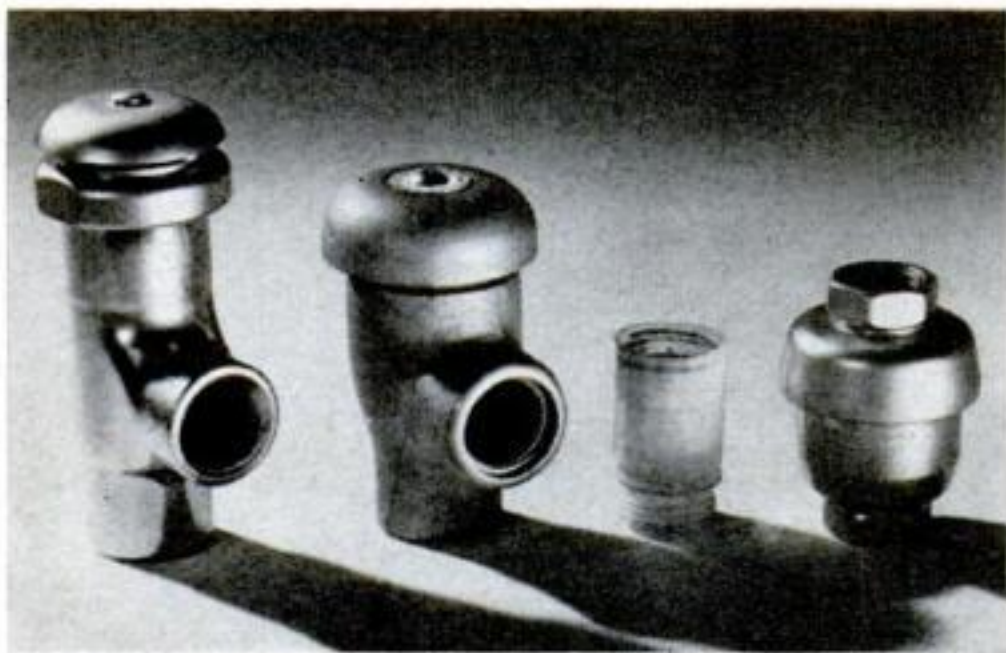


GOOD water-works practice calls for keeping a positive pressure in the mains at all times. But even in the best systems things can happen that will cause the pressure to drop either in your local street mains or in a branch line in your house. Pressure in a branch line varies with the velocity of flow in the trunk line supplying it. An open fire hydrant, a broken main, or simply a number of faucets turned on at once can increase the velocity in the trunk line enough to cause pressure to drop in a branch line.

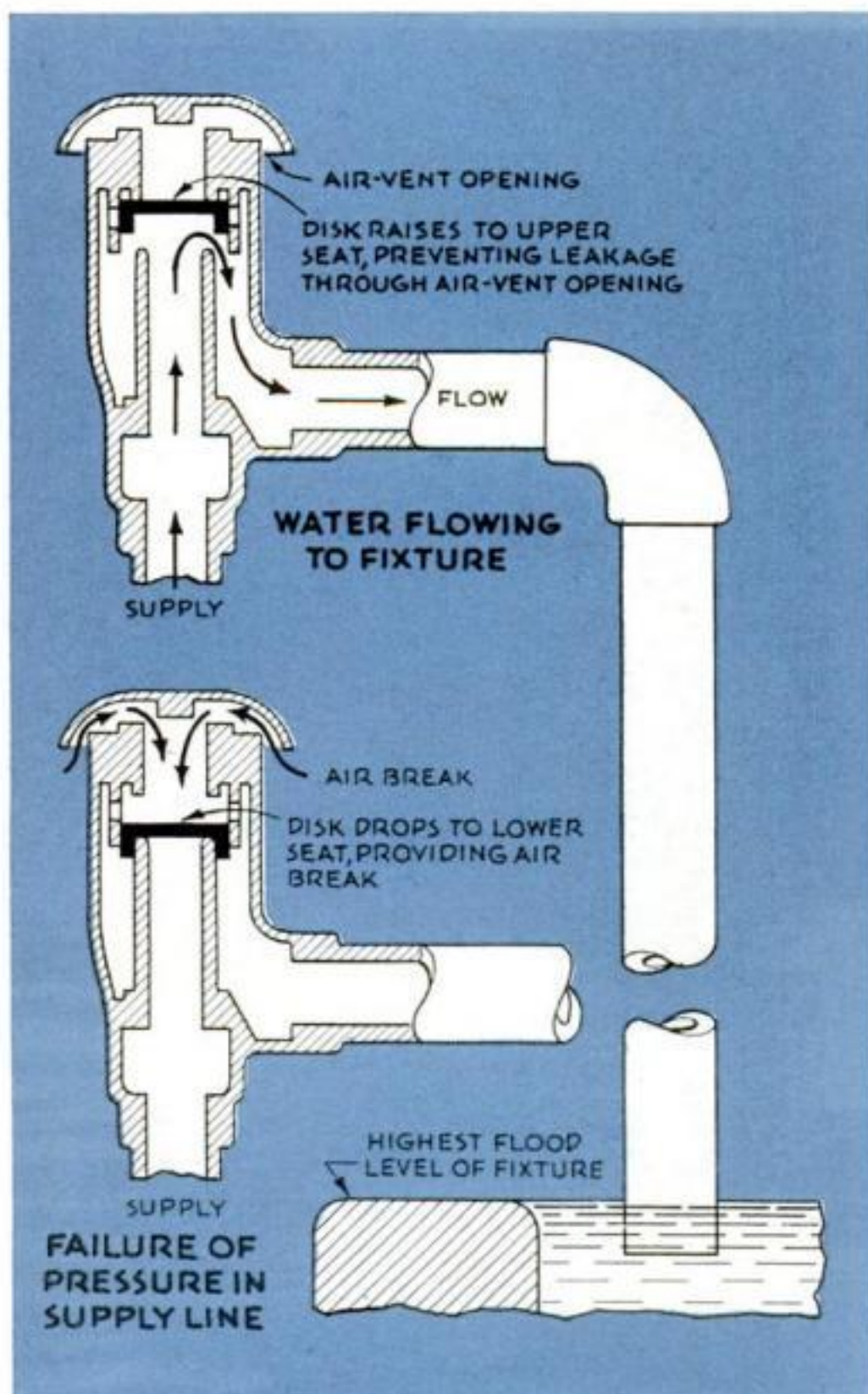


PRESSURE DROPS when the velocity of the water flow increases. A restriction in the main line will cause the water to speed up if there is a demand farther along the main line.

Don't take chances—protect your water supply



ANTISIPHON DEVICES, such as those shown here, are required by most plumbing codes for a piping arrangement where it is possible for a pure-water outlet to become submerged in contaminated water.



BACKFLOW IS PREVENTED by admitting air into the pipes if water pressure drops below atmospheric pressure. These devices are installed in the supply line at least 6" above flood level of the fixture.

know all the water is out of the pipes. But suppose a shower hose were on the faucet and the open end were lying in a tub full of water. Now you have a perfectly good siphon. All the water in the tub would be drawn through the hose and into the pipes.

This is a special situation, of course. If it were the only way you could get backflow, there would be nothing to fret about. But exactly the same thing can happen without shutting off the water supply. Any time the water pressure in the line drops, there's the possibility of starting a siphon. The pressure drop may be only momentary and the backflow may amount only to a teacupful, but even that amount of contaminated water in the drinking-water supply can be risky.

Safeguarding your water. The surest, and often the simplest, way to prevent backflow is to provide an air gap between the outlet of the fresh water and the surface of the waste water. Where this is not feasible, you can buy vacuum breakers or antisiphon devices that are connected directly in the water-supply line. Most of these work by admitting air to the line any time the pressure inside the pipe drops below atmospheric pressure.

Most plumbing codes require an antisiphon device on all permanent water connections where the outlet might become submerged in contaminated water. This includes lawn-sprinkler systems connected by a hose, washing machines, and other appliances that don't have built-in backflow protection.

Remember, any hose connected to a faucet is as much a part of your water system as any of the pipes as far as backflow hazard is concerned. Even a closed faucet isn't sure protection. If water dribbles out when it's shut off, it will leak in if back-siphonage conditions should occur.



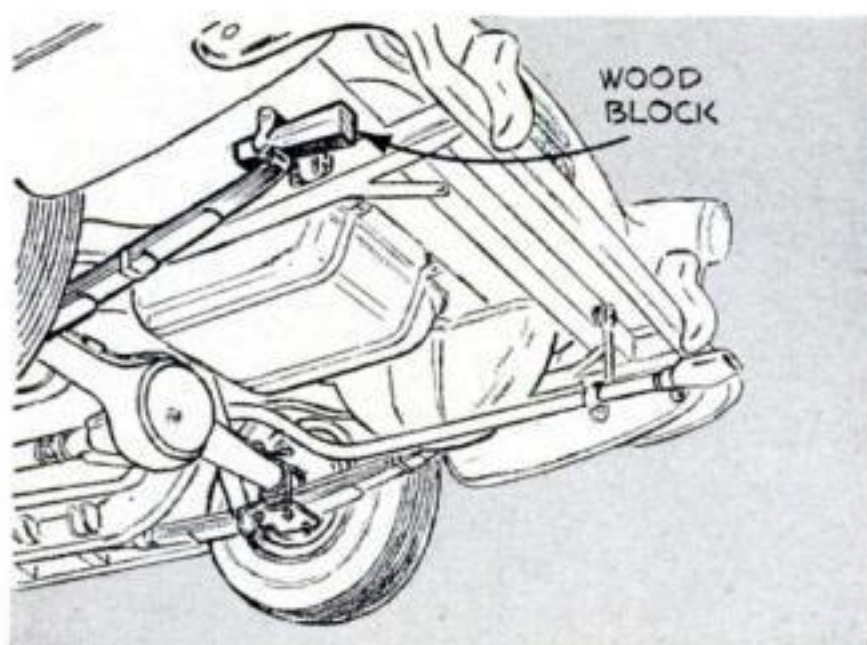
Short Cuts and Tips

FROM PS READERS

Slide Warmer Ends Projector "Popping"

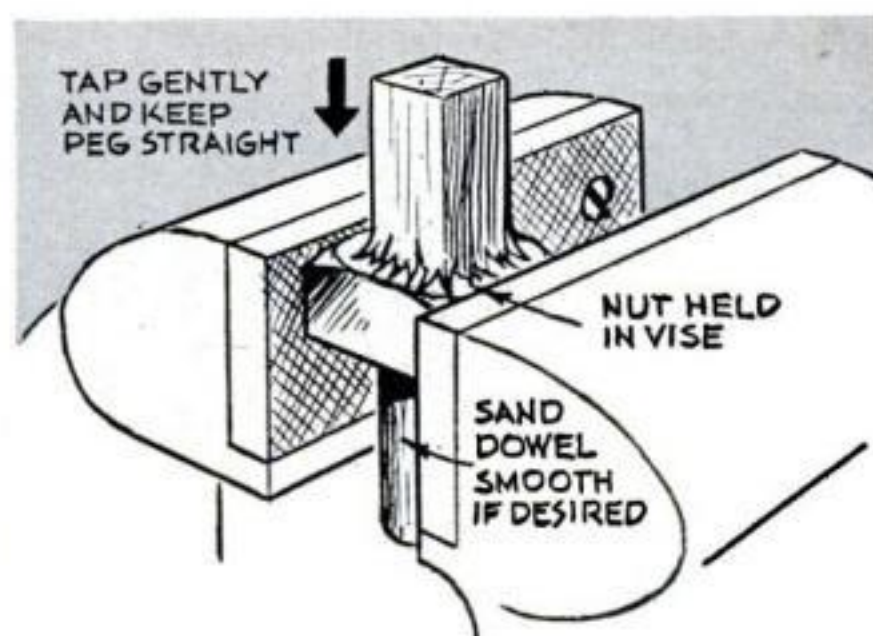
BECAUSE heat makes photographic slides expand, many projectors "pop" in or out of focus as each slide warms up. You can prevent this by prewarming the slides. A simple rack like this, bent from clothes-hanger wire, will hold a tray of slides over the warm air from the lamp house.—*Tom Griberg, Moline, Ill.*

▶▶▶ To KEEP the springs on lawn furniture from pinching and tearing the plastic pad covers, wrap the springs with plastic tape. The tape makes a slippery, elastic cover that wears well if smoothly applied.—*W. H. McClay, Pasadena, Cal.*



Un-Braking in Emergencies

WHILE driving through the desert, I broke the main leaf of a rear spring. This let the axle move backwards, tightening the parking-brake cable and locking the brakes. To release them, I raised the car with the bumper jack so I could force the axle forward. Then I held it in place by driving a wedge of wood into the spring shackle. The trick held while we drove 100 miles for permanent repairs.—*E. L. Enochs, Modesto, Cal.*



Making Dowels in a Hurry

IF YOU'RE caught needing dowels when the stores are closed, here's a quick trick for making your own. Slice square pegs of straight-grained scrap wood slightly oversize, then drive the pegs through a machine nut with a hole of the desired diameter. Round the starting ends of the pegs with a penknife so they'll enter the nut easily. You'll be amazed at the beautiful round dowels that come out.—*Ross Plaisted, Painesville, Ohio.*

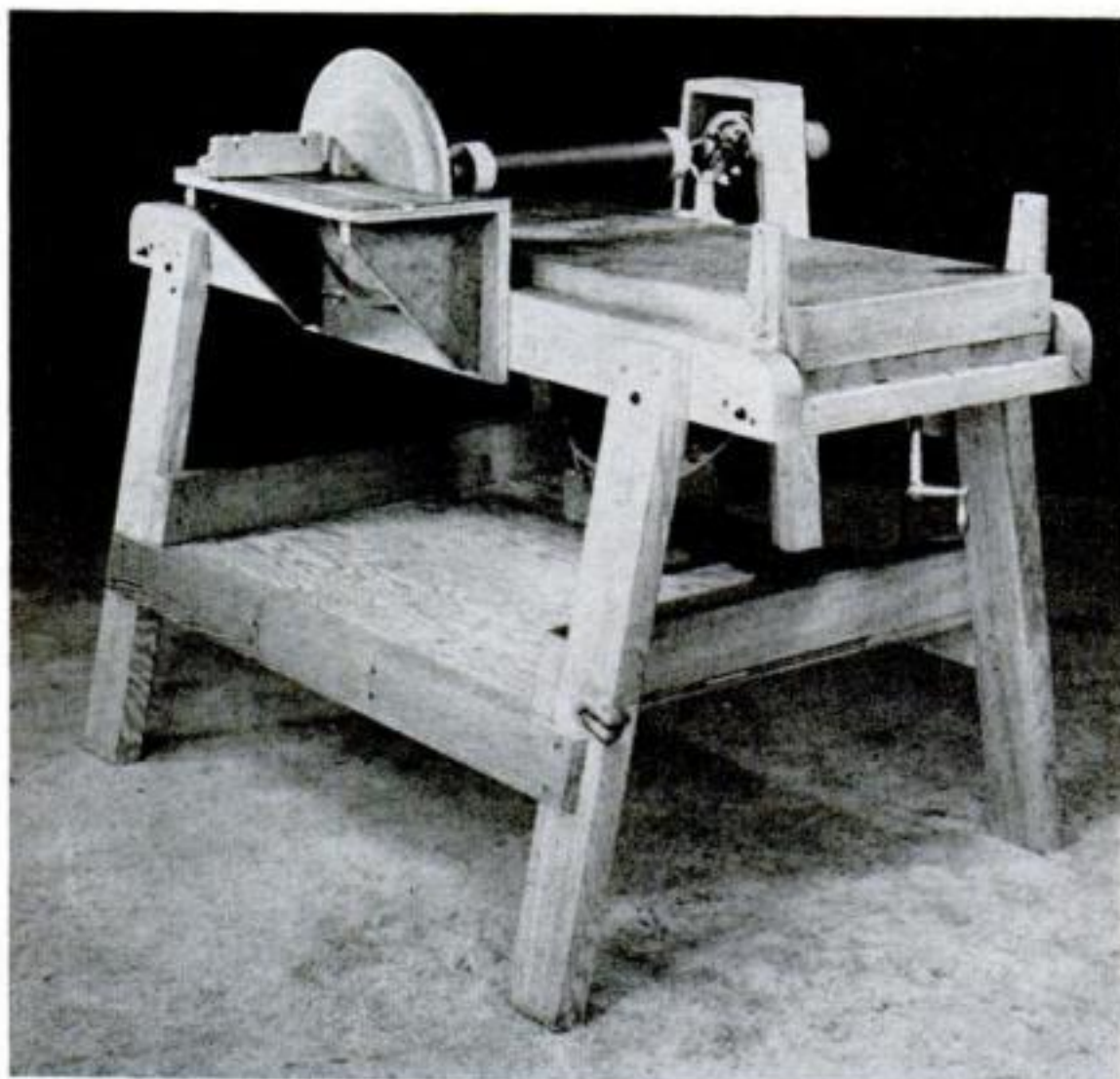
Ever wish you could run a board through a machine and have it come out flat and smooth? Then here's the tool you need:

A Thickness Sander for Home Shops

By R. J. De Cristoforo

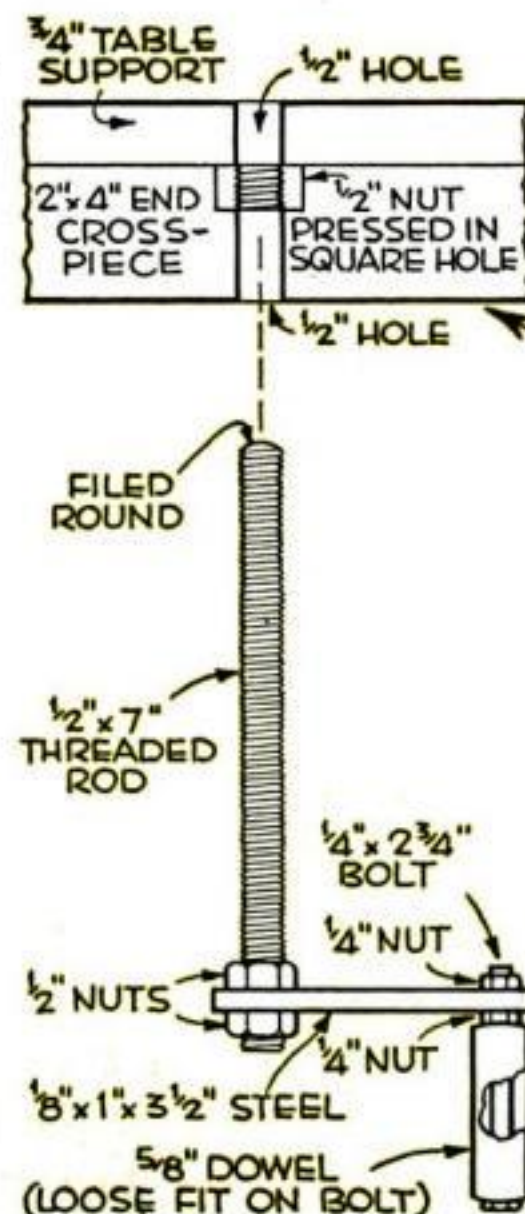
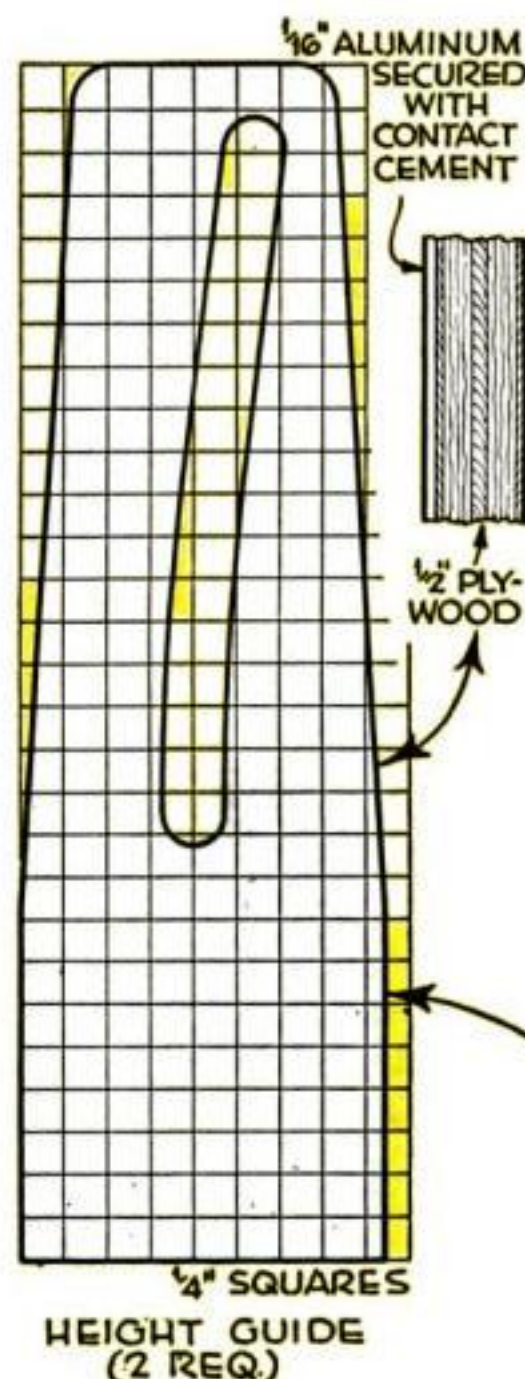
A THICKNESS sander is one of the most useful woodworking tools you could add to a home shop. Yet you aren't likely to buy one, for such tools are available only in large and costly versions, for commercial use. But you can build one for a small amount. Mine cost \$23, and it includes a disk sander and a contour drum that set me up for just about any sanding job.

The tool's main job—thickness sanding—is done by a long, sandpaper-covered drum suspended on two



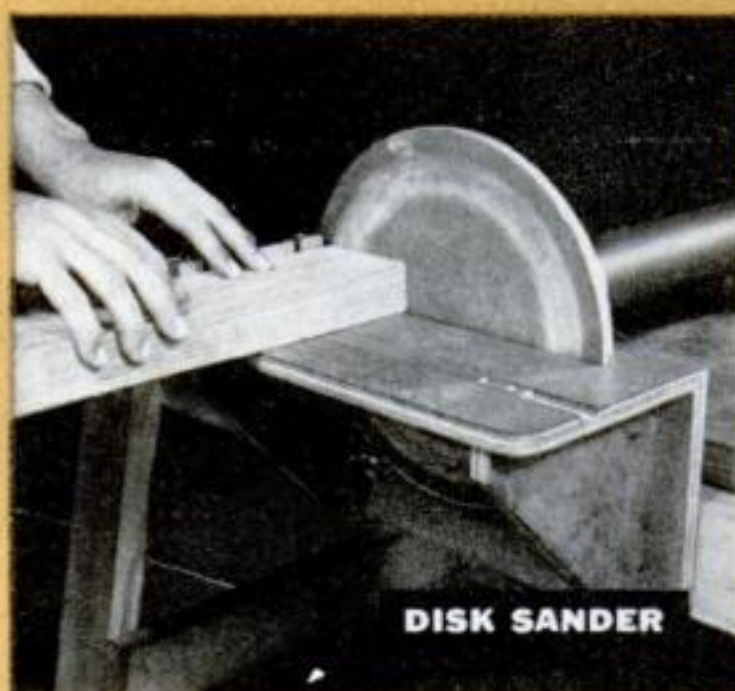
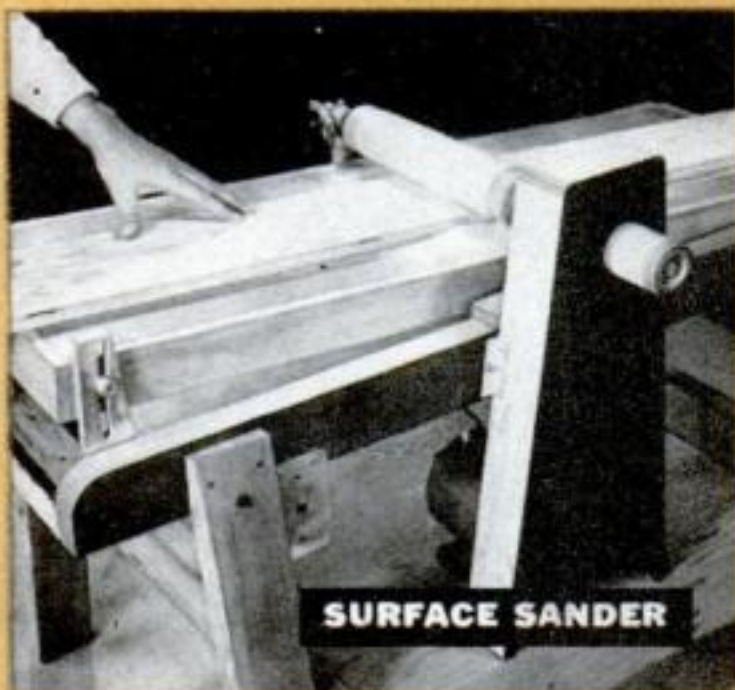
AS RUGGED AS IT LOOKS, the thickness sander can shave off $\frac{1}{16}$ " at a single pass. It'll smooth boards up to 2" thick.

164 POPULAR SCIENCE OCTOBER 1959



A sanding center for all types of smoothing jobs

NAME your requirement: This universal tool surface-sands boards and reduces their thickness (just below), smooths edges (center) and inside curves or irregular shapes (bottom).



shaft bearings. Boards of any length and up to 12" wide, passed over an adjustable table beneath the rotating drum, come out smooth and uniform in thickness. Warped boards can be dressed flat and parallel on both sides by repeated passes beneath the drum.

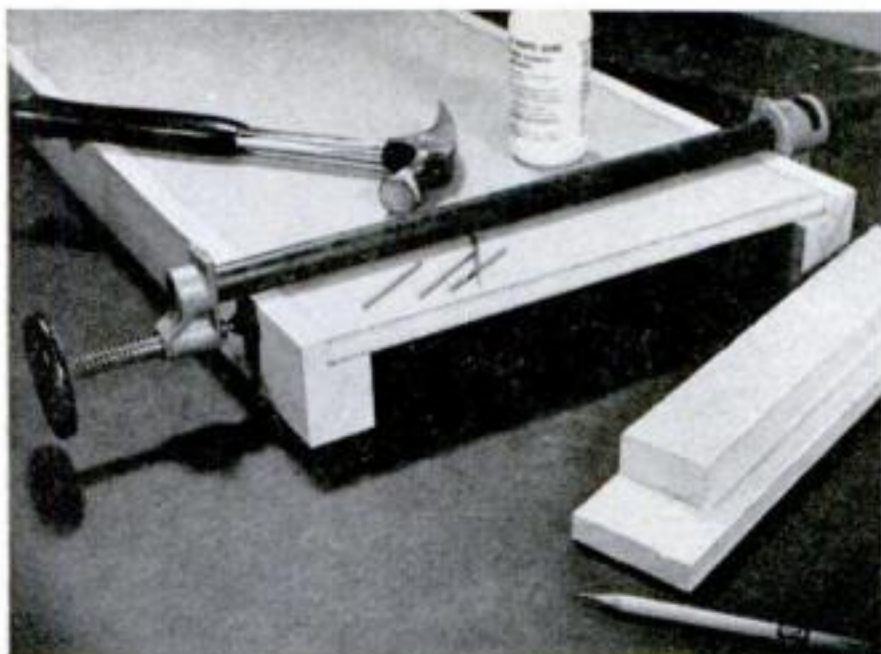
Make the table first. The entire machine is built around the main sanding table. So begin by assembling this. Hard-board-surfaced plywood was used, but you can get an equally smooth table by laminating $\frac{1}{4}$ " hardboard over $\frac{3}{4}$ " plywood. Frame the plywood with rabbeted two-by-threes. Add a single cross member beneath the plywood at the centerline to stiffen it at the sanding area.

The table support is a solid structure resembling a sawbuck. Use straight two-by-fours for the rails and cross members. Cut the latter exactly $16\frac{3}{8}$ " long for a snug fit at the adjustable end of the table. Cut the legs to $30\frac{1}{2}$ " length and form a 10-degree bevel about 3" wide on the inside face at the top of each. Bevel the bottom ends to fit flat against the floor. Nail the legs to the table support, then drill holes for $\frac{1}{4}$ " carriage bolts. Install the two-by-three stretchers, shelf supports and shelf, then add a cross brace at each end above the shelf.

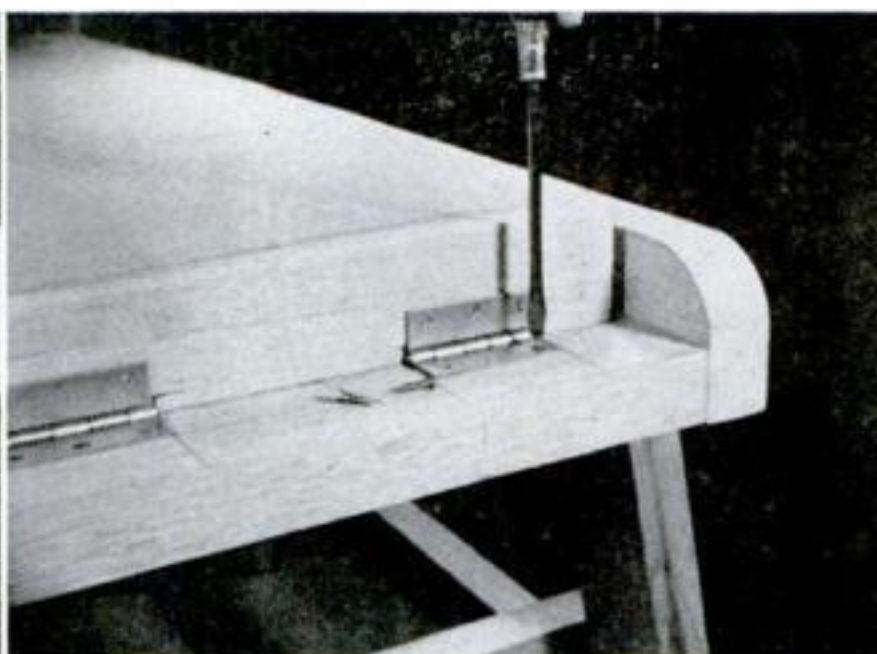
Trace the height-guide pattern on $\frac{1}{16}$ " aluminum and on $\frac{1}{2}$ " plywood, cut them out, and contact-cement the aluminum to the outside face of the plywood. Screw the guides to the ends of a $\frac{3}{4}$ " base block cut to exactly $15\frac{1}{4}$ " length. Clamp the base block on top of the end crosspiece and drill a $\frac{1}{2}$ " hole through both. Remove the base block, chisel a tight-fitting square recess around the hole in the crosspiece and press a $\frac{1}{2}$ " nut into it. Bed the nut with wood putty, if necessary, to seat it firmly. Permanently install the height-guide base over the nut. Assemble the crank handle on a 7" length of $\frac{1}{2}$ " threaded rod and screw it in position.

Pivot the back end of the main table on two 3" butt hinges screwed to the back crosspiece. Check the adjustable end of the table for free up-and-down movement, then locate the hole for the $\frac{1}{4}$ " height-locking bolts. Drill through the height-guide slot on each side (accurately) to make the hole for the bolt. Insert the bolts from inside the frame and again check the up-and-down movement. If

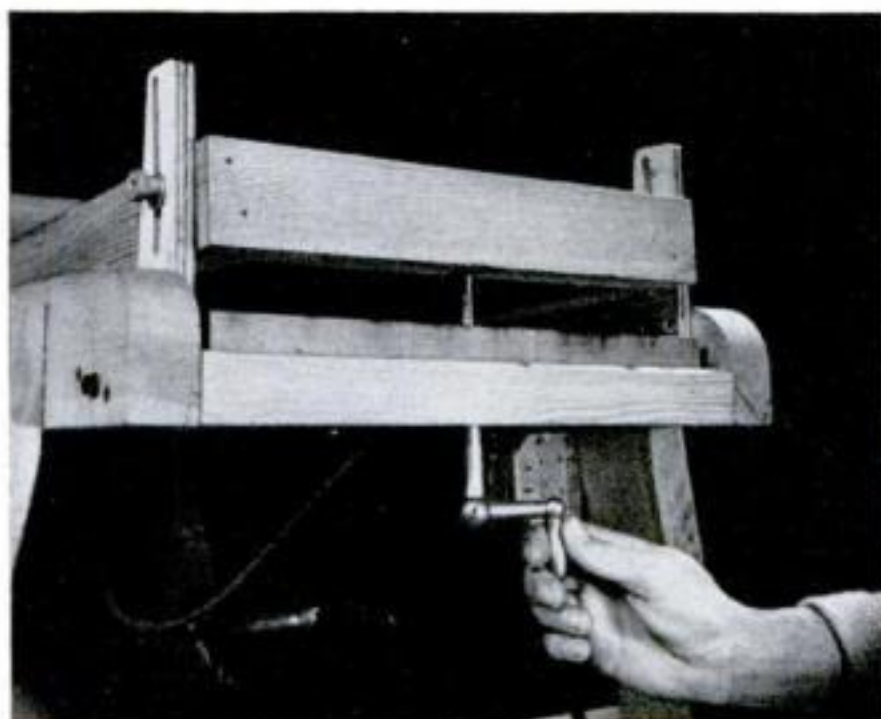
Last steps: mounting the table and truing the drum



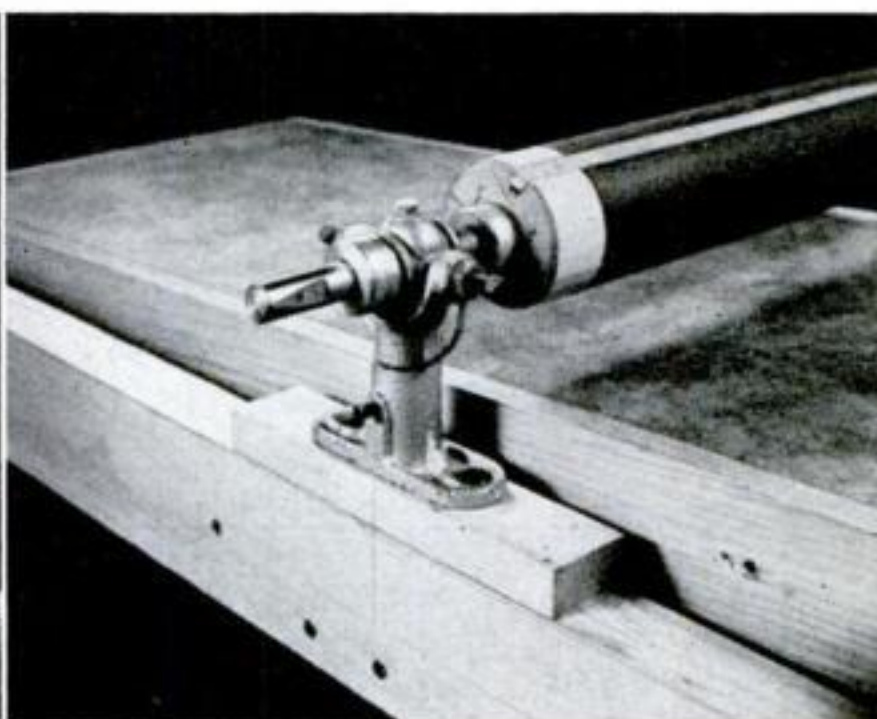
HARDBOARD-SURFACED PLYWOOD makes a smooth top for the sanding table. Frame the plywood with two-by-threes rabbeted to receive it. Assemble with glue and either screws or nails.



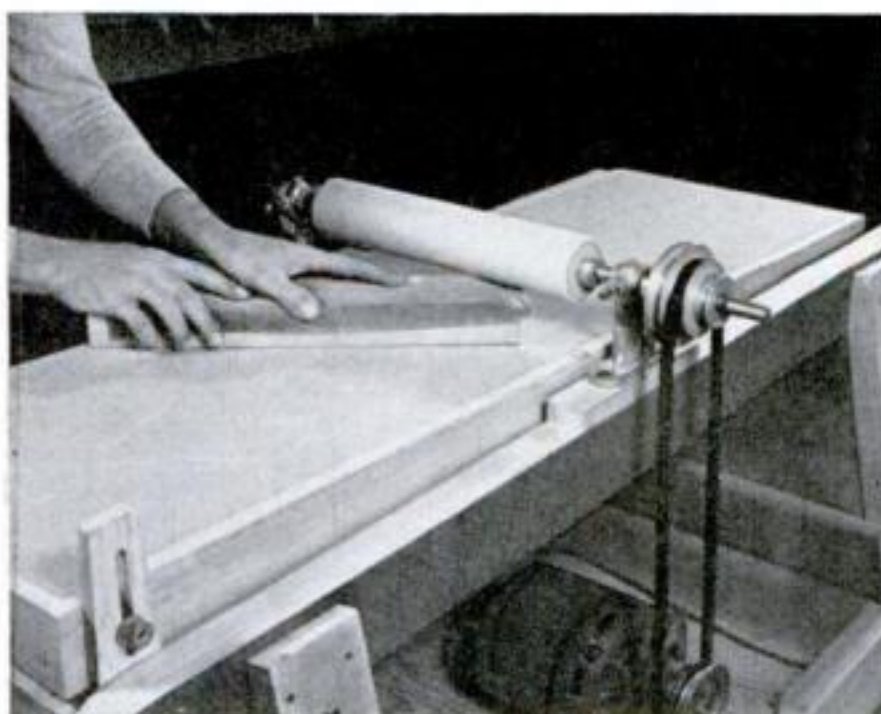
THE TABLE PIVOTS up and down on two 3" butt hinges (be sure to pick a pair with tight pins and no play). Chisel shallow grooves in the crosspiece so the hinges will lie flat.



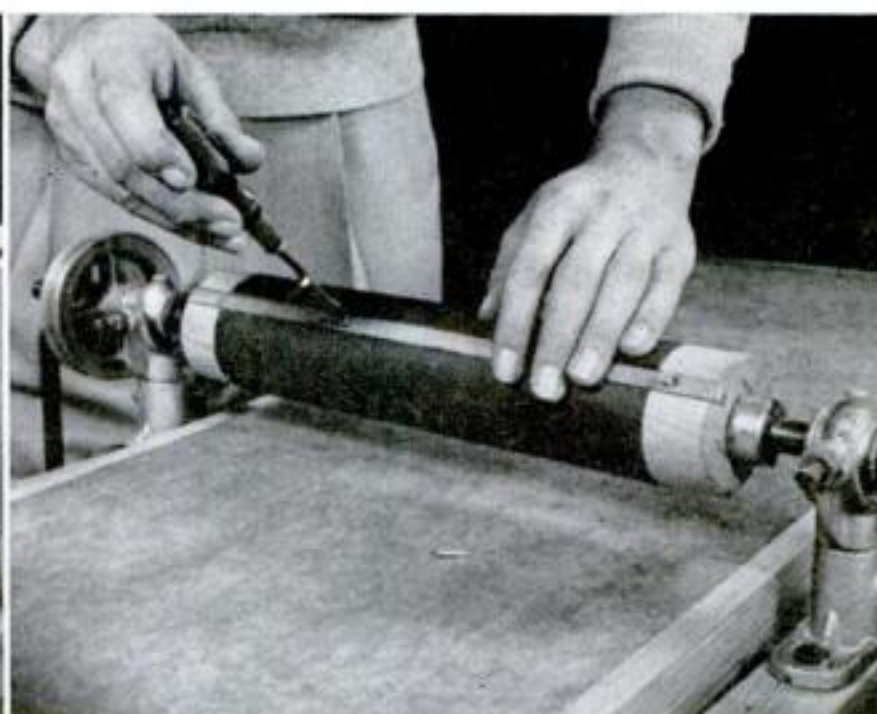
ELEVATING CRANK, turning in a nut bedded in the wood, raises the adjustable end of the table. Wing nuts or knurled screws (shown) lock the table after its height has been adjusted.



SHAFT HANGERS are used to support the drum shaft. Other bearings can be used, but make the shim blocks high enough to maintain maximum 2" clearance between drum and table.

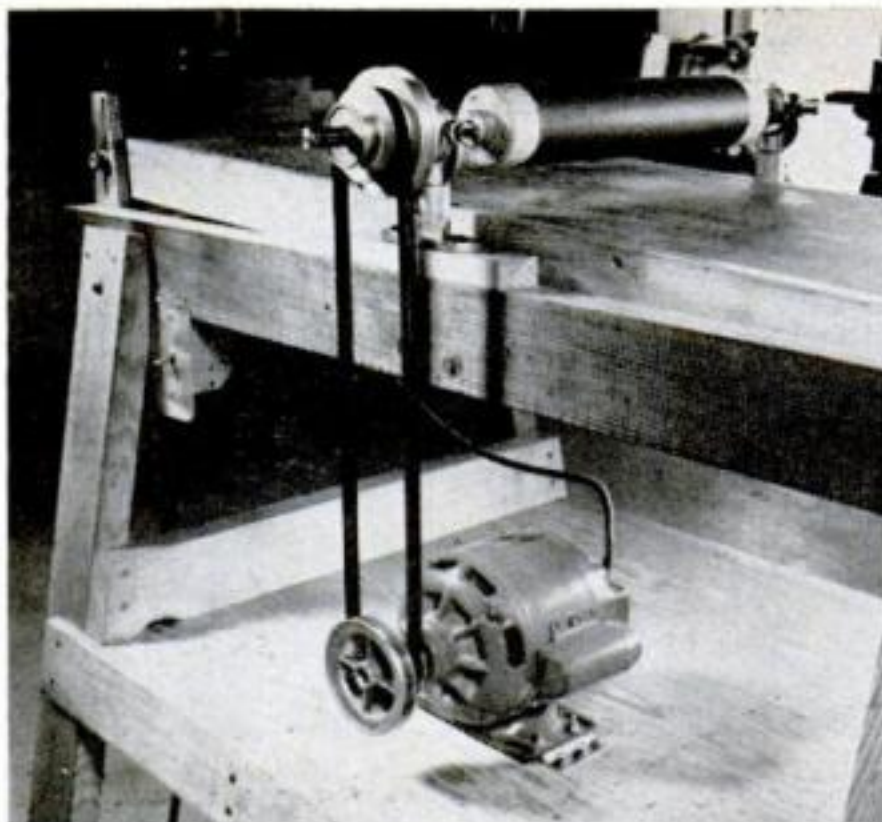


TRUE THE DRUM by sliding a sandpaper-covered block beneath it. Don't reduce its diameter to less than $2\frac{7}{8}$ ", or sandpaper sheets will overlap too much when wrapped around it.

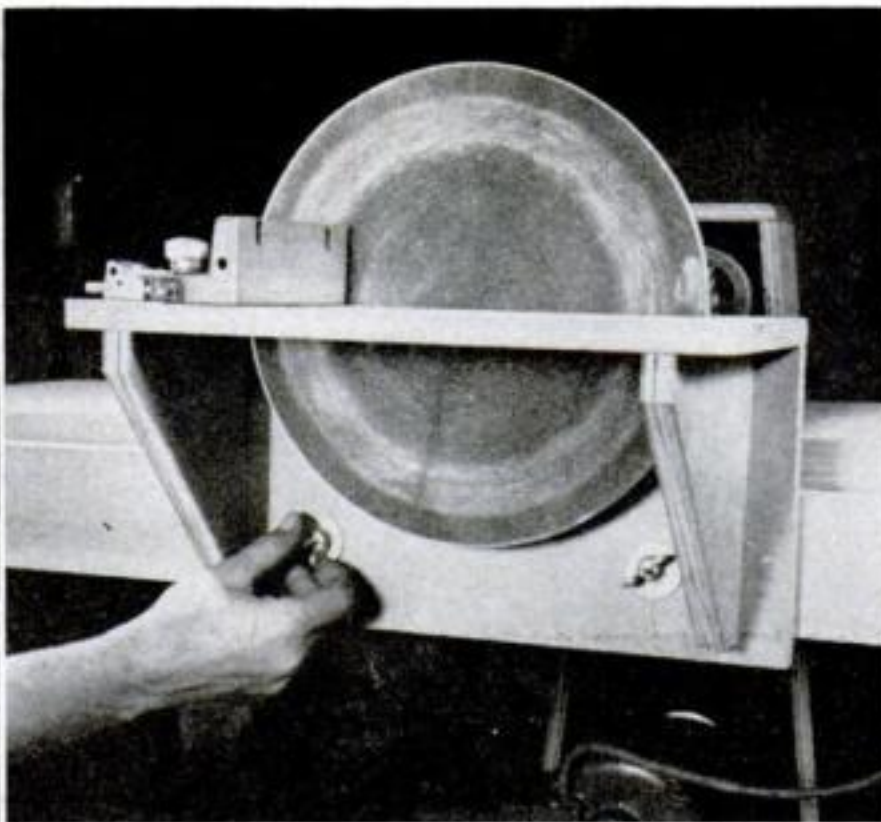


HARDWOOD WEDGE holds the sandpaper in place. Insert one edge in the groove, wrap the sandpaper tightly around the drum and tuck the other edge in. Then screw down the wedge.

CONTINUED



MOUNT THE MOTOR ON A HINGE screwed to the shelf. Its weight will maintain belt tension. You might locate the on-off switch on the left side rail instead of as shown, where it would also be convenient to the much-used disk sander.



SANDING TABLE is fastened to the rail with two wing bolts; the disk is the type with a $\frac{5}{8}$ " hub that locks on the shaft with a setscrew. Cut a groove in the disk-sander table to fit the miter gauge from your table saw.

there's binding anywhere in the slot, file additional clearance for the bolt.

Best way to turn the drum: For the drum, select two straight-grained pieces of maple or birch $1\frac{1}{2}$ " by 3" by $13\frac{1}{2}$ ". Along the center of each block cut a V groove deep enough so that when the pieces are joined the two V-grooves will form a tight-fitting square hole for the $\frac{5}{8}$ " shaft. Try a few grooves in scrap until you get the proper blade setting. Drill three transverse holes through the shaft and drive $1\frac{1}{2}$ " finishing nails through the holes to pin the shaft to one

half of the drum block. Glue on the other half block. When the glue dries, you'll have a 3"-square block firmly mounted and centered on the shaft. Screw a $\frac{5}{8}$ " shaft collar to each end of the block.

Chuck one end of the shaft in the lathe headstock and support the other end with a tailstock live center. Check the diameter often as you turn the drum and stop when you get within $\frac{1}{64}$ " of the finished $2\frac{7}{8}$ " diameter. This final fraction can be removed by truing the drum with sandpaper after it is mounted in position

[Continued on page 242]

..... WHAT'S YOUR MECHANICAL IQ?

The Case of the Bicycle-Chain Hoist

"WILL you sell me three of these used pedal sprockets?" Bill asked the bike-shop repairman. "Figure I can use them and some old chain to rig a hoist for lifting the engine out of my sports car."

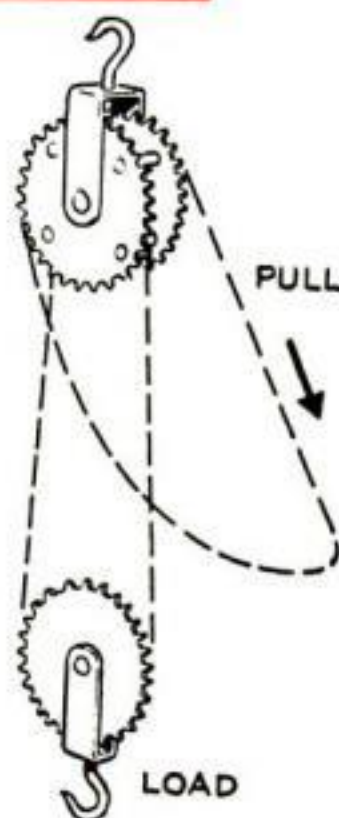
"Sure, just pick them out," said the dealer. "But you'll need hefty bearings and strong hooks to take the load."

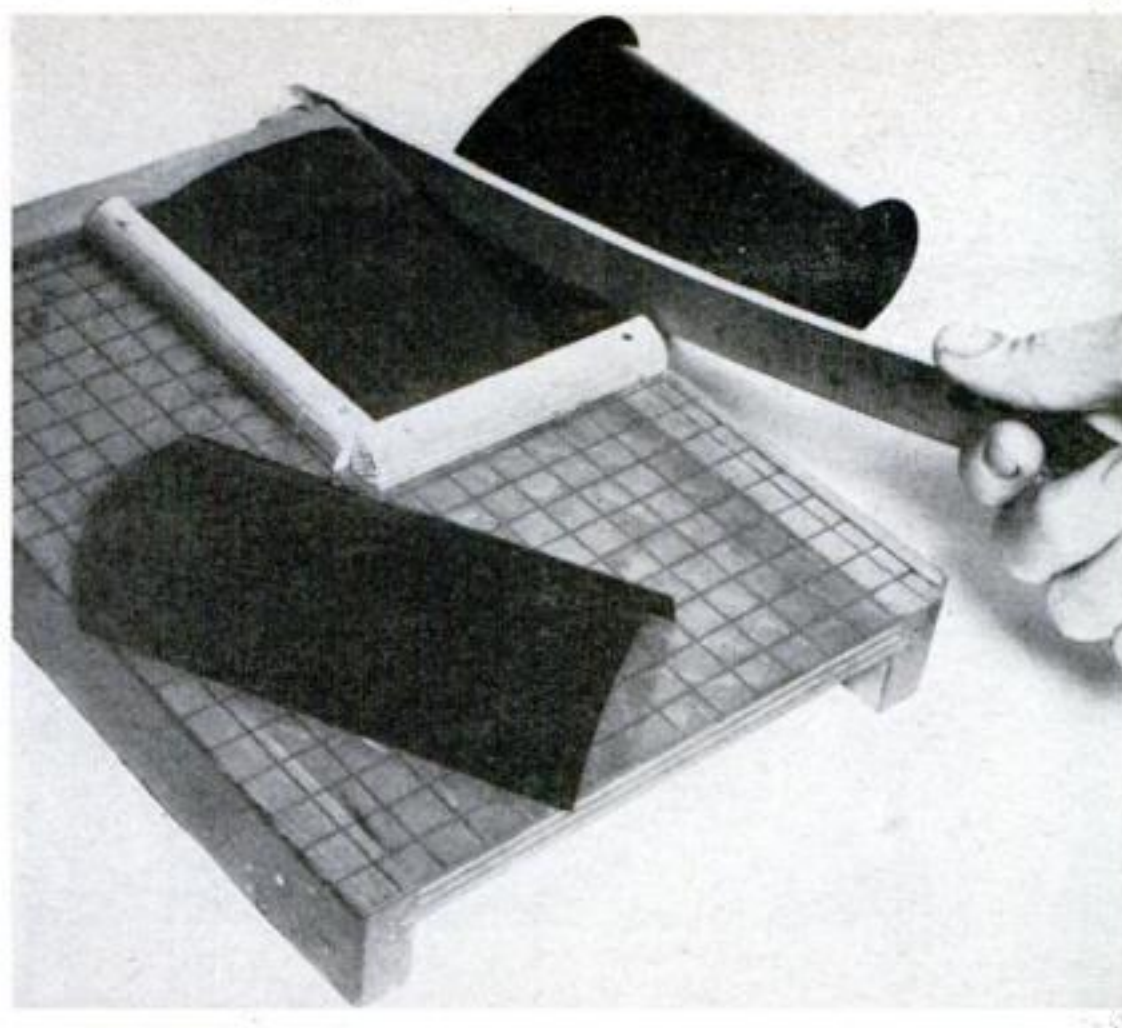
Bill found three sprockets of identical size and took out his wallet. But the dealer shook his head.

"You'll never build a hoist with those," he predicted.

"Why not? I'll bolt two together and run the chain like this over them and the third one at the bottom."

Quickly he sketched the arrangement shown. Would it work? For the answer, turn to page 189.





Short Cuts and Tips

FROM PS READERS

Cutting Roll Film Quickly in the Dark

CUTTING your own sheet film from big spools of government-surplus roll film saves a lot of money, but can be slow going in the dark. Strips of molding tacked to a cutter form a guide that lets you quickly lop off each piece exactly the right size. I get 50 uniform four-by-five sheets from one 200" roll, saving about \$5.—*John A. Comstock, Wellsboro, Pa.*

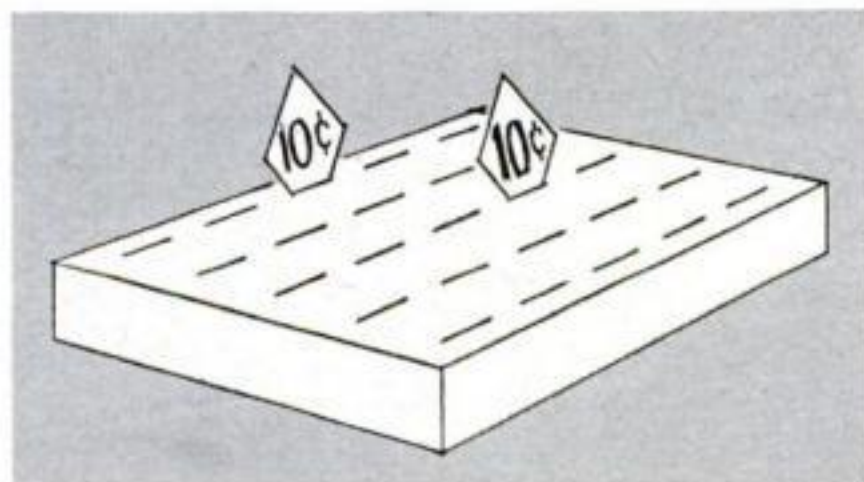
Reverse Labels are Stainproof



BOTTLE labels that resist the stains of day-to-day handling can be made by lettering the inscription in reverse on the gummed side of cellulose tape. Attached to the bottle, the copy will be correctly visible and permanently protected.—*G. E. Hunt, Chicago.*

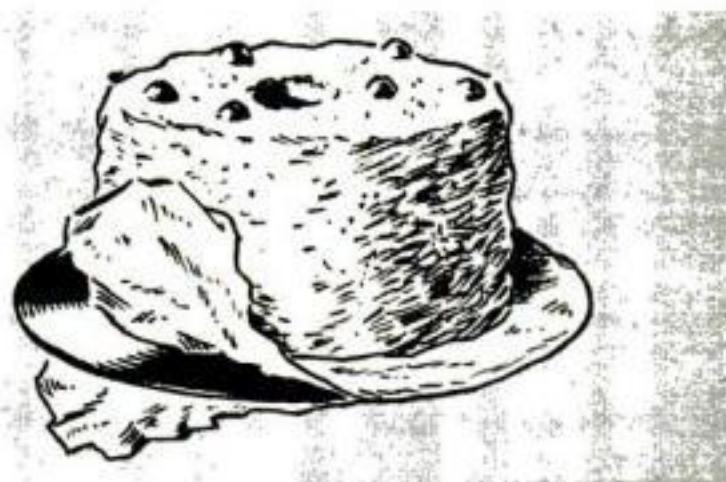
Clipping Gloves to Belt

A U-SHAPED metal strip fastened to the eyelet of a spring-type paper clip provides a convenient way to carry work gloves. Hooked over the belt, the clip frees the worker from having to carry gloves in hands or pockets.—*Ralph Baker, Blue Diamond, Nev.*



Drying Rack for Price Tickets

A SERIES of slits cut in the cover of a pasteboard box convert it to a drying rack for freshly lettered price tickets. The cards, inserted in the slits, will be held safely erect until they're dry.—*John Argyle, Milwaukee.*

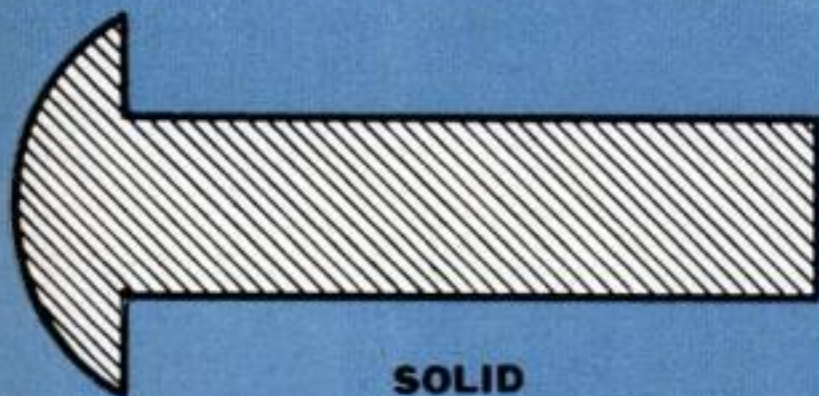


"Platters" Make Real Plates

DISCARDED phonograph records, covered with aluminum foil, are good "disposable" plates for carrying cakes to a sale or a church supper. There's no need to worry about their getting lost or broken.—*Mrs. Edwin Johnson, Iron River, Mich.*

Facts it'll pay you to know about—

The Handy Art



SOLID



SEMITUBULAR

FOUR thousand years ago, bronze-workers came up with a very practical fastener. It was a heavy pin with a head on one end. You pushed the shank through mating holes in any two parts you wanted to join. Then you flipped the assembly over and bashed down the tail. That formed a second head. Between the two, the parts were snugged together so tight even water couldn't find a path between them. It was a handy way to put a seam in a pot or pan, or stitch

up the plates of a javelin-proof vest.

Today these same fasteners—rivets—are used in industry by the tens of billions each year. You'll find them just as useful for home projects and repairs. That goes for everything from assembling a sturdy shop-tool base or boat trailer to applying new handles to garden tools. It's a must for many leather and ornamental-metalworking jobs. It's the trim way to pin hi-fi kit components to a chassis. In modelmaking, miniature rivets can be as functional as they are realistic in appearance.

Choosing the right rivets. As easy as riveting is, there are facts and knacks you should know to get professional results. You're halfway there when you can walk into a big hardware store and not be bewildered by the many combinations of rivets offered: shanks and heads, sizes and metals. To pick the kind best suited to your needs, remember these points:

- All rivets fall into three basic groups: solid, tubular and split. In each case, the name describes the kind of shank.

- Solid rivets make the beefiest joints. Use them for all heavy metal-to-metal bonds, authentic reproductions of antique metalcraft, and working-model assemblies that will be under pressure or strain.

- Tubular rivets are less strong, but easier to apply. A hand-down from horse-and-buggy days, they're designed to cut their own holes in leather, fiber and thin sheet metal. They're good, too, for join-

Rivet-head types you'll find most useful



BUTTON



COUNTERSUNK



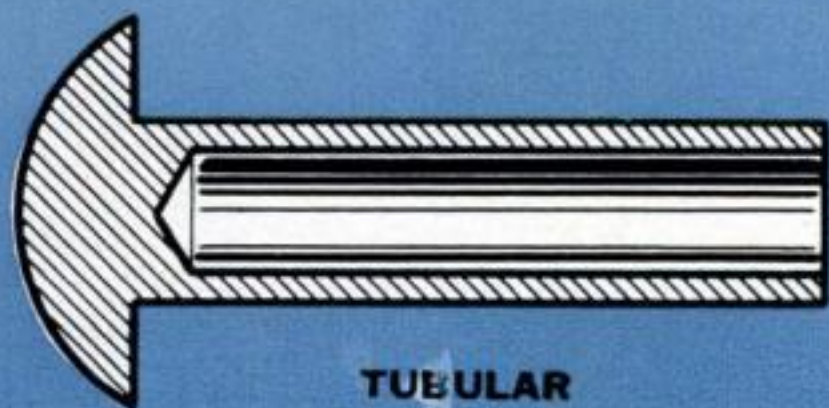
BRAZIER



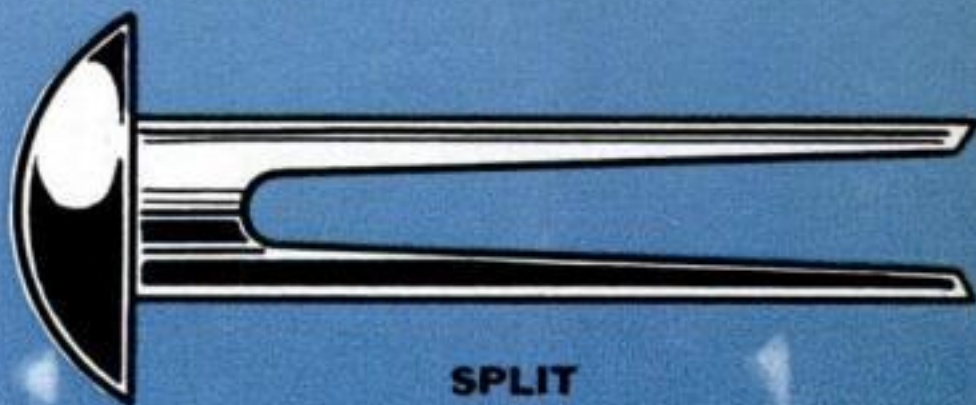
FLAT

of Riveting

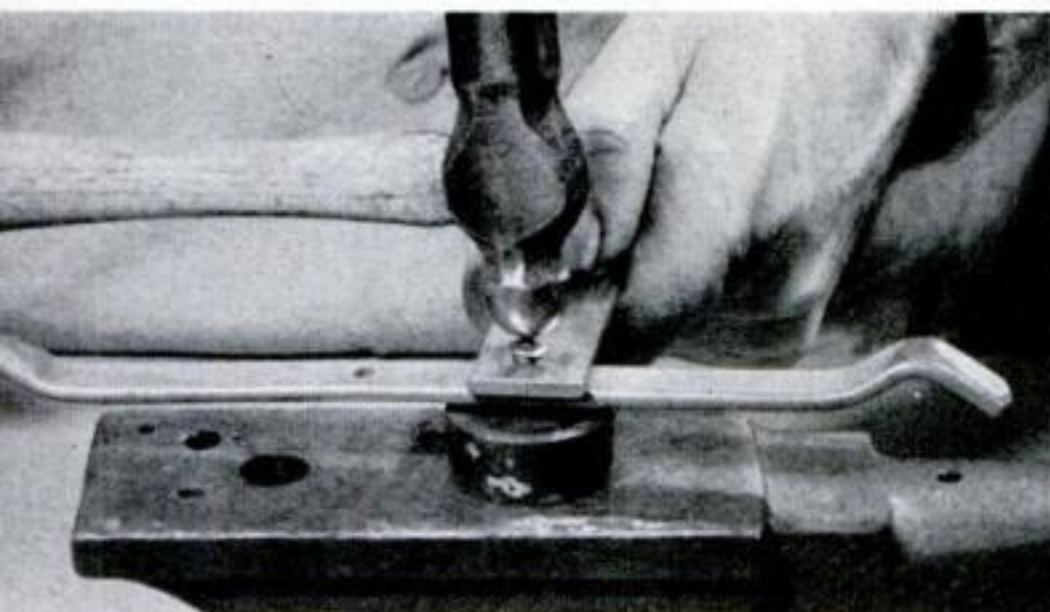
By Walter E. Burton



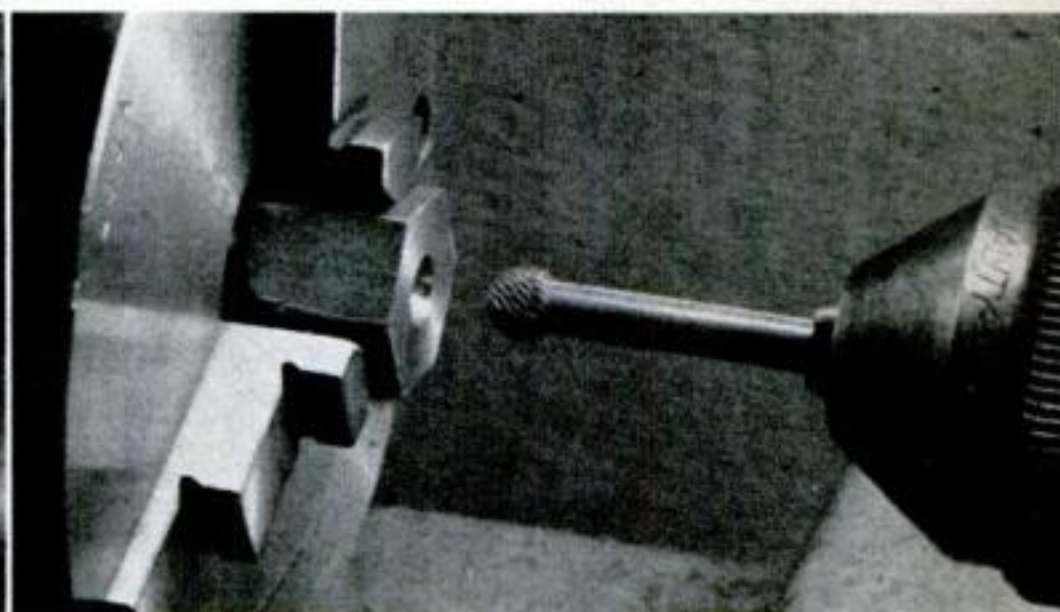
TUBULAR



SPLIT

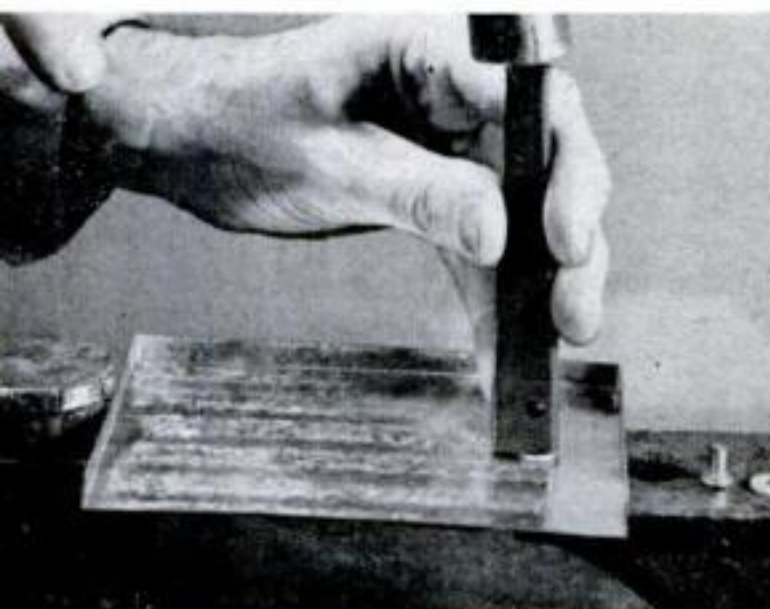


BOLSTERS, or "bucking blocks," are slabs of steel that back up rivets for peening. Hemispherical or cone-shaped cavities in their upper faces protect rivet heads while the shanks are being



shaped. Homemade workshop versions are easy to form from scrap stock. After starting the hole with a drill, smooth it out with the right type of rotary file, as shown above.

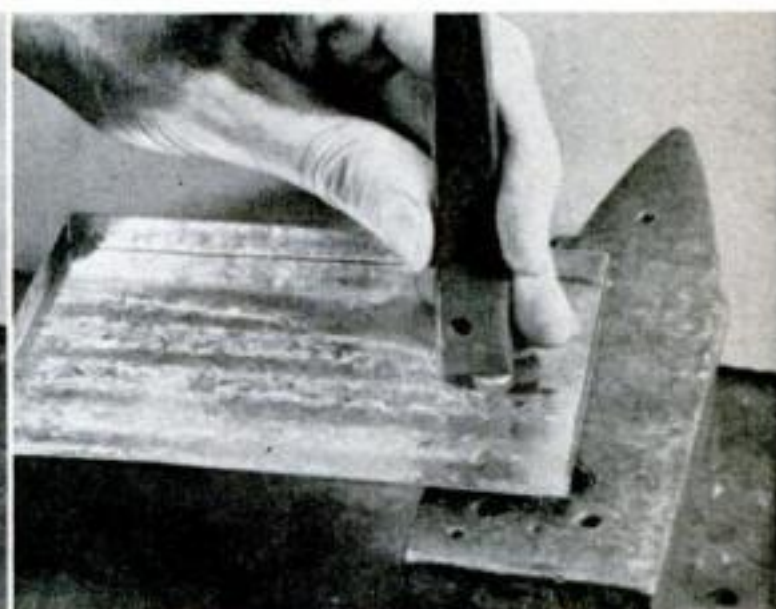
Three steps for a strong sheet-metal bond



TIGHT-FITTING WASHER, or "burr," is forced over rivet shank with a combination rivet set and cup tool. A hole in the set slips over the shank end.

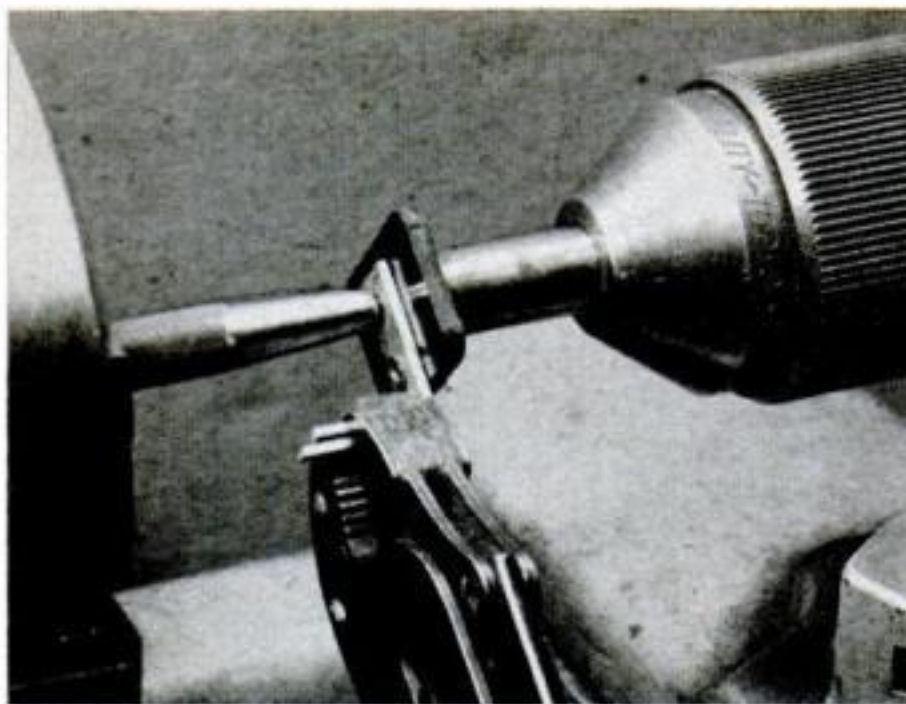


WITH BURR BUTTING WORK firmly, rivet's shank end is rounded roughly to shape, while the flat head rests firmly on an anvil top below it.

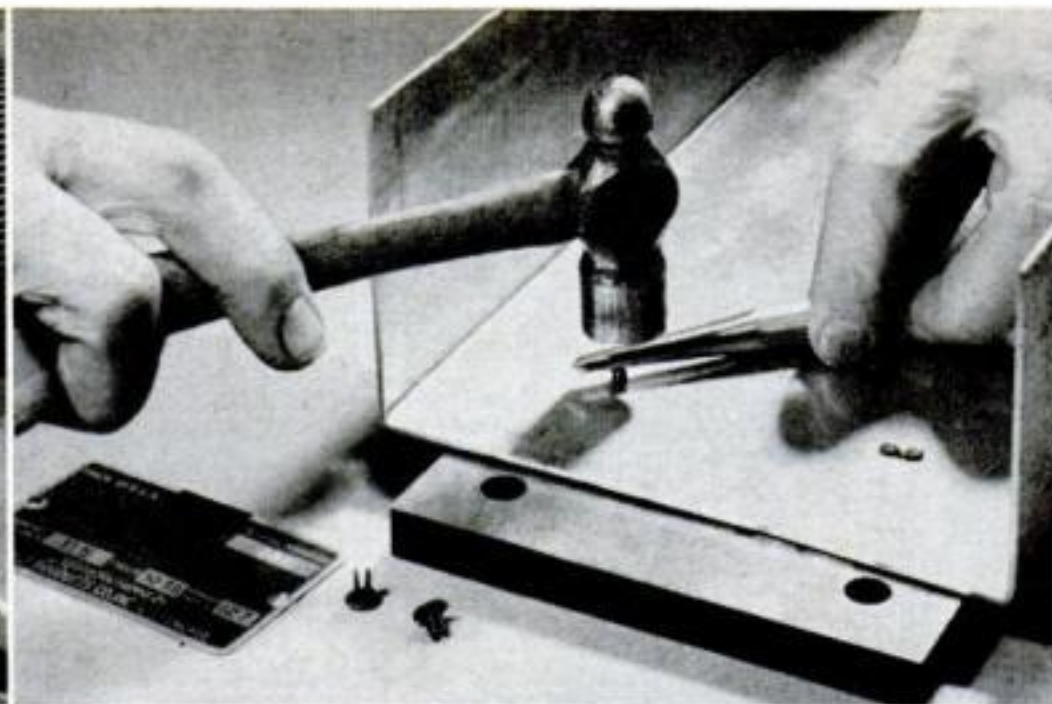


CUP-SHAPED CAVITY in the set is placed over the roughly peened other rivet head. Sharp blows on the set then give head a neat hemispherical form.

CONTINUED



SETUP FOR SPINNING tubular rivet ends in a lathe is shown above. A rod in the tailstock chuck backs up work and advances it against centerpunch turning at moderate-to-rapid speed.



PRONGS OF SPLIT RIVETS are spread behind sheet-metal parts by placing a punch between the prongs and tapping its side with a hammer. A couple of direct hammer blows finish the job.

ing soft materials to ones that are hard.

- Semitubular rivets are variations of the tubular type, in which only the end of the shank is hollowed out, for easy clinching. When buying these, you should know the combined thickness of the materials to be joined, and choose rivets whose solid shank sections extend not quite through the whole assembly. Like the solid rivet, the semitubular offers strong resistance to shearing action, but its flanged end isn't as husky. Don't use tubulars or semitubulars where parts will be under heavy tension.

- Split rivets have a divided shank that spreads out when they're driven, tack-fashion, into most materials. This

self-anchoring feature makes them handy for attaching brake and clutch linings, fastening sheet materials to wood, and assembling and repairing fiber and leather products. They can also be installed through drilled holes, then cleated on the far side of the joint.

Which head style for what? There's more variety in rivet heads than in shank types. But unless you're reproducing some structural-steel design in a model, you can forget all but three. These are the button head, flat head and flat-top countersunk head.

The button head, which is hemispherical in form, is the strongest. When combined with a solid shank, it's the best for joining heavy angle iron and bar stock. Because it's decorative, it's also applied to many tubular and semitubular rivets. A variation of the button head is the brazier head, which is more elliptical in form.

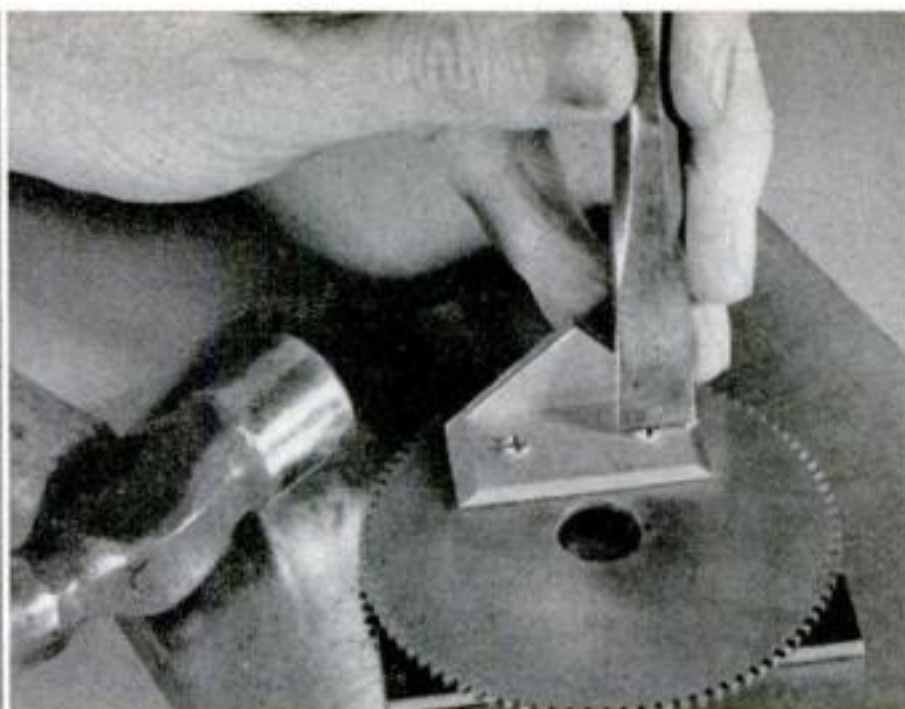
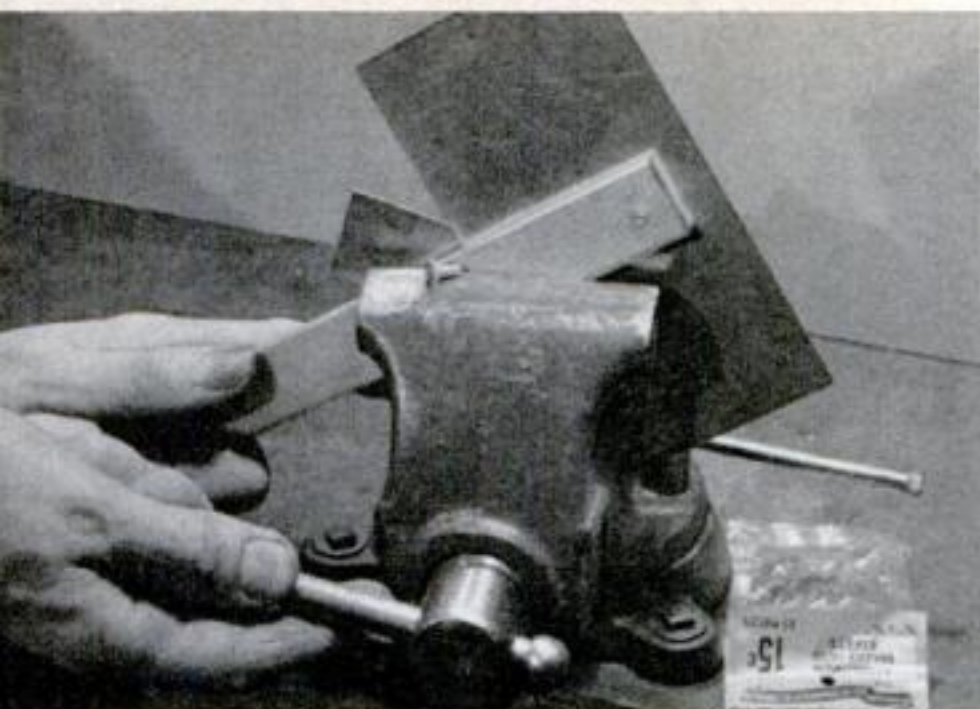
Flat heads are commonly offered in all three shank styles. While not as hefty as button heads, they usually provide a broader bearing area. That's important when you're dealing with soft materials and sheet metal, to prevent tear-outs.

Flat-top countersunk heads produce strong, smooth-surfaced joints. When applying them, you must ream mating cavities in the parts being bonded. This limits their use to comparatively thick stock.

What material is best? Wherever possible, use rivets of the same metal as the parts to be joined. This is especially important on outdoor assemblies, or where



SPECIAL RIVET-TYPE FASTENERS are often handy for small crafts work and repairs. The two-piece kind shown here snap together and are then clinched by squeezing or hammering.



SIMPLE WAYS TO SET SMALL RIVETS: Solid aluminum midgets are soft enough to be compacted with the pressure of a vise. To avoid impressions of jaw corrugations, a block of soft

metal can be placed behind the head, and a sheet of smooth steel applied to the shank end. Another method: A cold chisel ground to a rounded edge forms a clinching cross.

bonds will be exposed to moisture. There, electrolytic action between unlike metals will break down the best joint rapidly. With a choice of mild steel, wrought iron, tinned iron, brass, copper and aluminum rivets, you should have little trouble matching common sheet, tubular and bar stock.

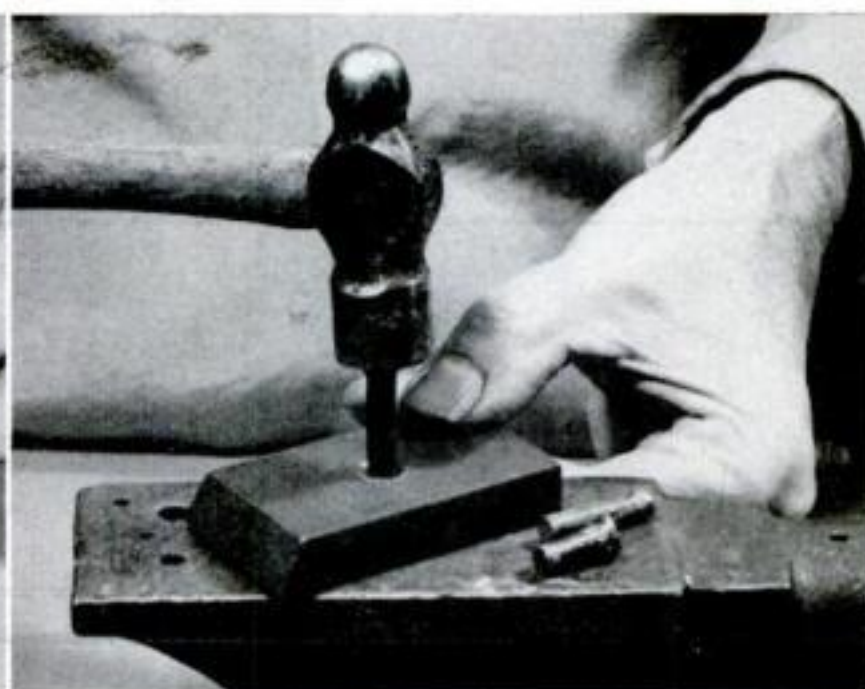
How to apply solid rivets. Because it expands throughout its length during clinching, a solid-rivet shank can supplement the gripping action of the heads by preventing side play. To make sure it does, drill rivet holes for a fairly snug fit. Use a rivet that projects from one to $1\frac{1}{2}$ times its own thickness beyond the joint. Tap it into place. Then, with its head

resting on an anvil or other fairly massive chunk of metal, clinch the tail by pounding on it with a ball-peen or cross-peen hammer. Start with several square blows, using the flat face of the hammer. This will spread the shank, completely filling the holes. Finally, with the ball or cross peen, shape the opposite head with light hammer blows directed at radiating angles toward the shank center—not straight downward. Flat hammering will splay the rivet and produce a weak, pancake head.

When a clinched end is to be flush with the work, ream out the rivet hole with a countersink bit (preferably 90 de-

[\[Continued on page 254\]](#)

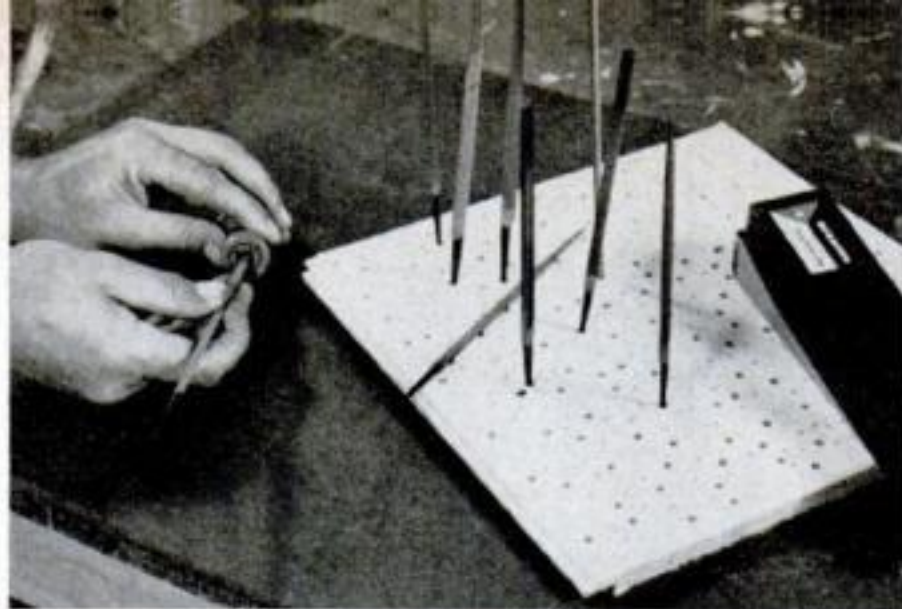
Homemade rivets solve special problems



ESCUTCHEON PINS are ideal for many model projects. You can trim them to uniform shank length with a jig like the one above. At right, a block of steel with a countersunk hole forms

flush-type rivets. Heads are roughed out with a hammer (above). For final shaping, the rivet body is extended into an anvil hole and the head hammered into the countersink.

7 Off-Ceiling Uses for Acoustical Tile



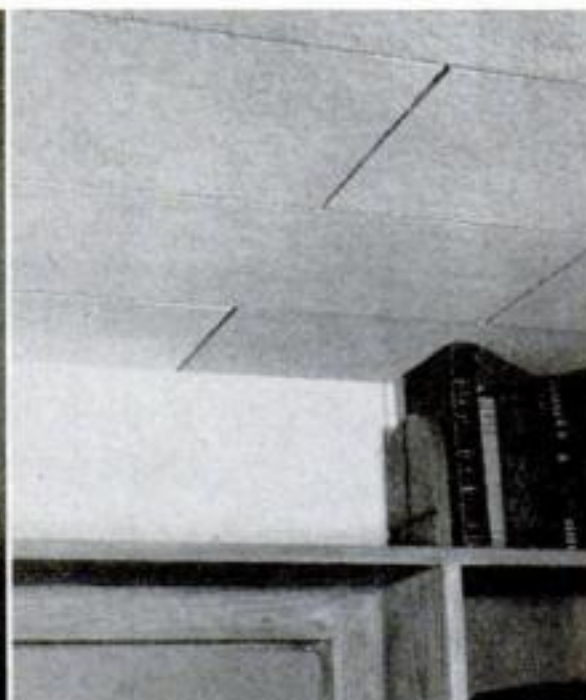
TOOL GUARD. To protect fine tools out of storage and to keep them handy while you're working, have a square or two around for shop use, as shown above.



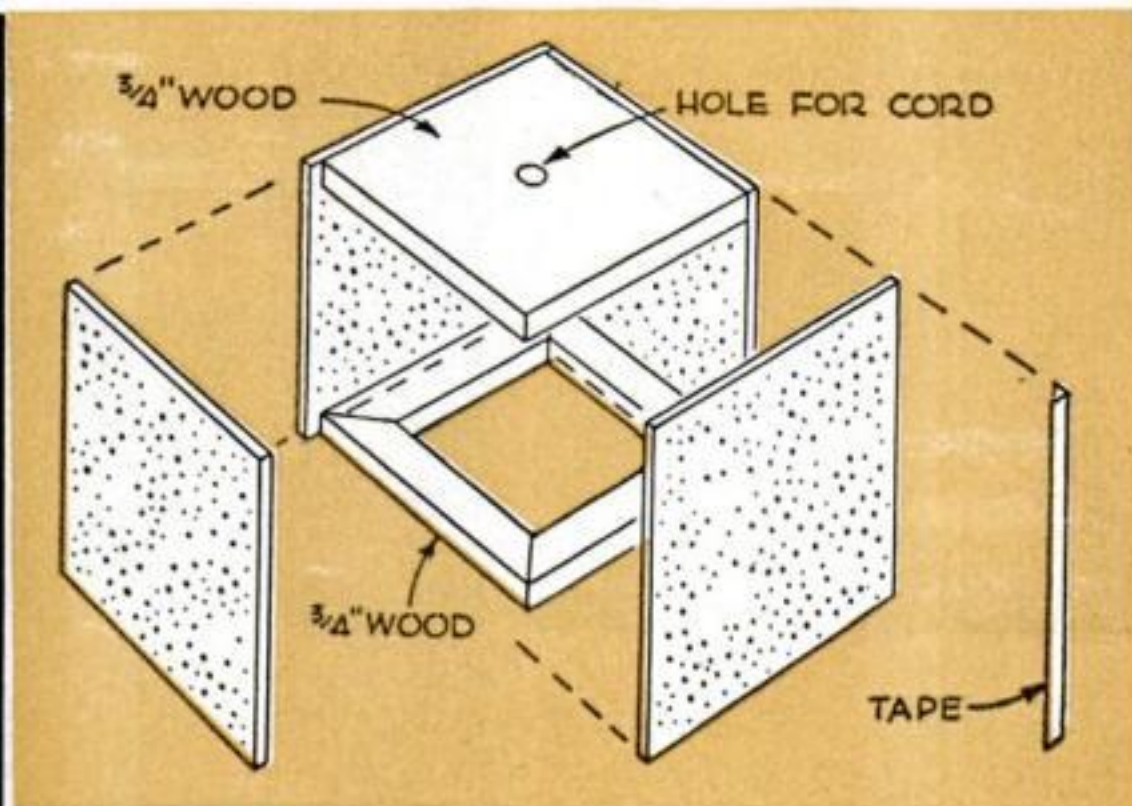
PICTURE FRAME. Four narrow strips of the fissured-surface type do nicely for framing since they are already tongue-and-grooved. Mount picture on $\frac{1}{8}$ " hardboard, slip latter into grooves after gluing. Use hangers on the hardboard surface.



MAT. Use it to mount a photo or piece of artwork. You can attach the picture to the tile with pins, map tacks or rubber cement.



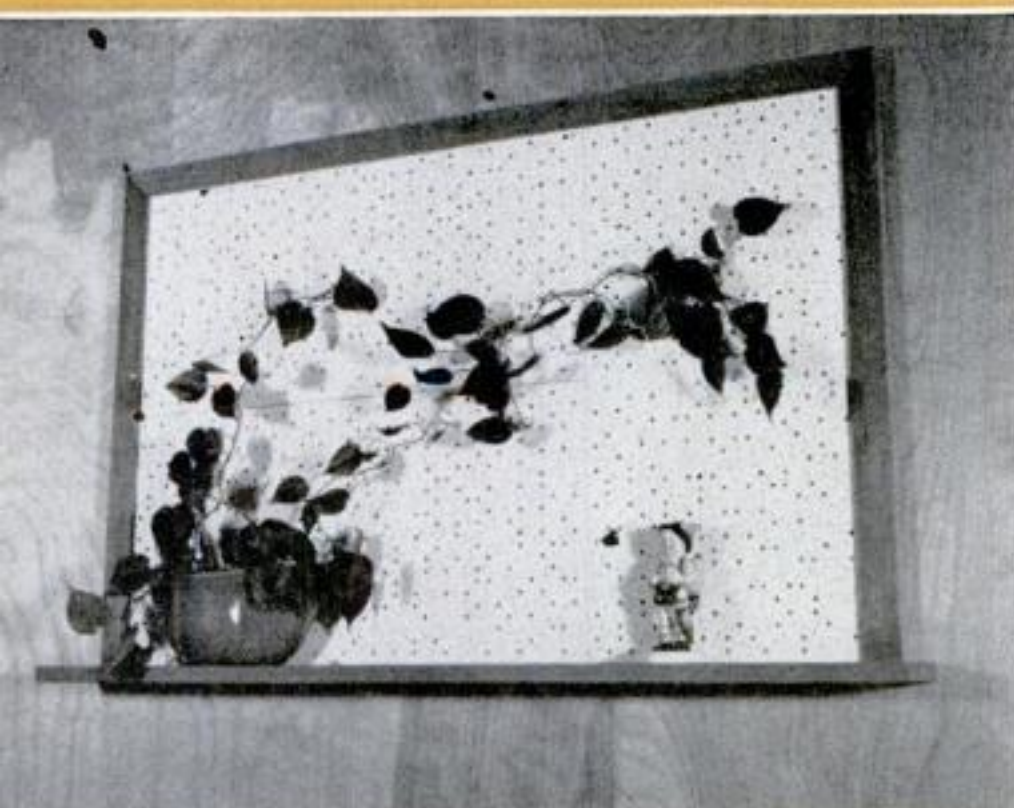
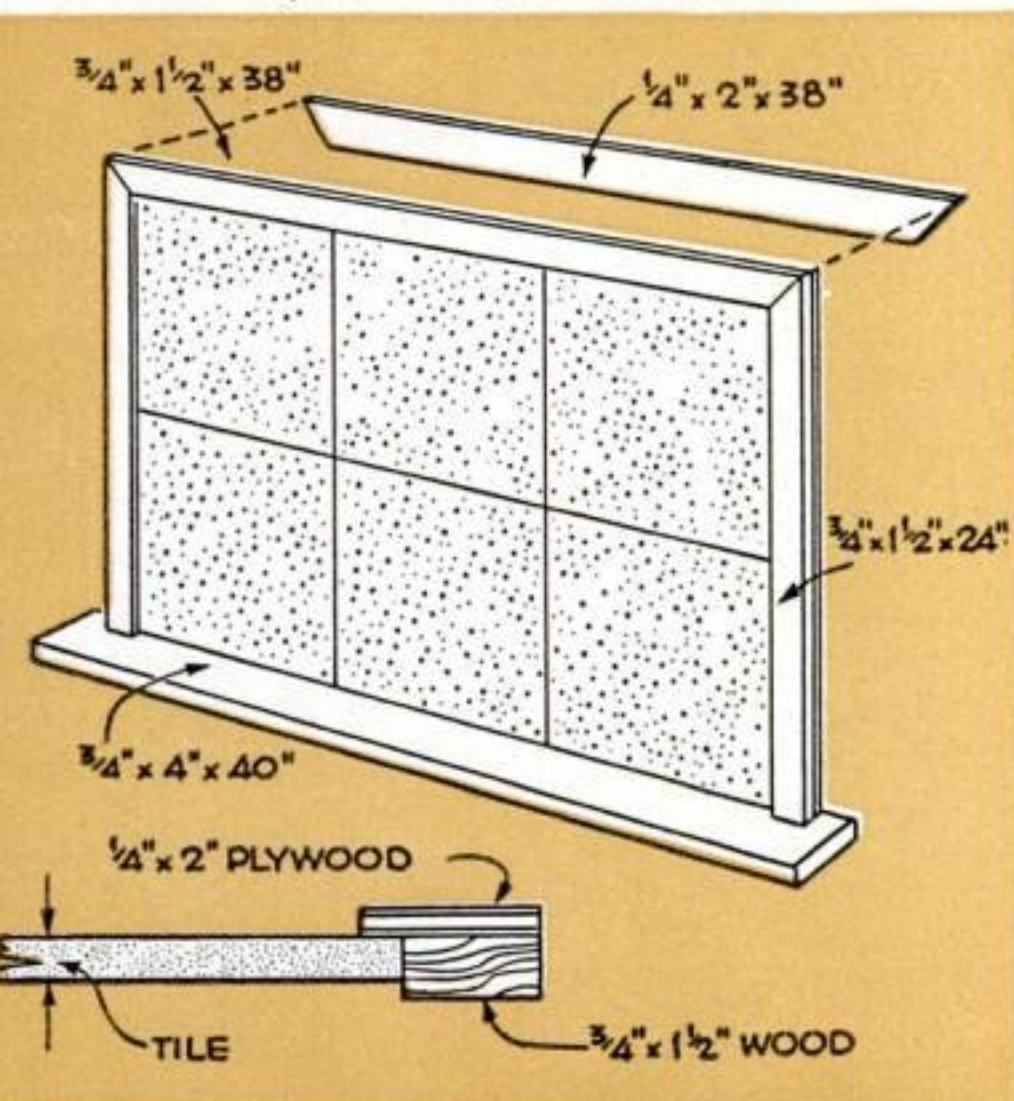
CORNER BRIGHTENER. Turn the corner and follow down the wall with ceiling tiles to brighten a dark corner such as this. Acoustical gum and a few small finishing nails hold tiles.



HANGING LANTERN. On a standard lamp socket it casts plenty of light below and a pleasant pattern through its sides. Peel off layers from back side of tile until holes go through. A cube ranging from 8" to 10" makes a good-size lantern.



BULLETIN BOARD or photo gallery—take your choice. Frame eight squares with wood like this. Rear surface of tile, smooth and tan-colored, looks more like bulletin board.



PICTURE PLANTER. Random-drilled tile, when framed like this, provides a striking background for a vine. Press short dowels or golf tees into the holes to support the trailing vines.

175



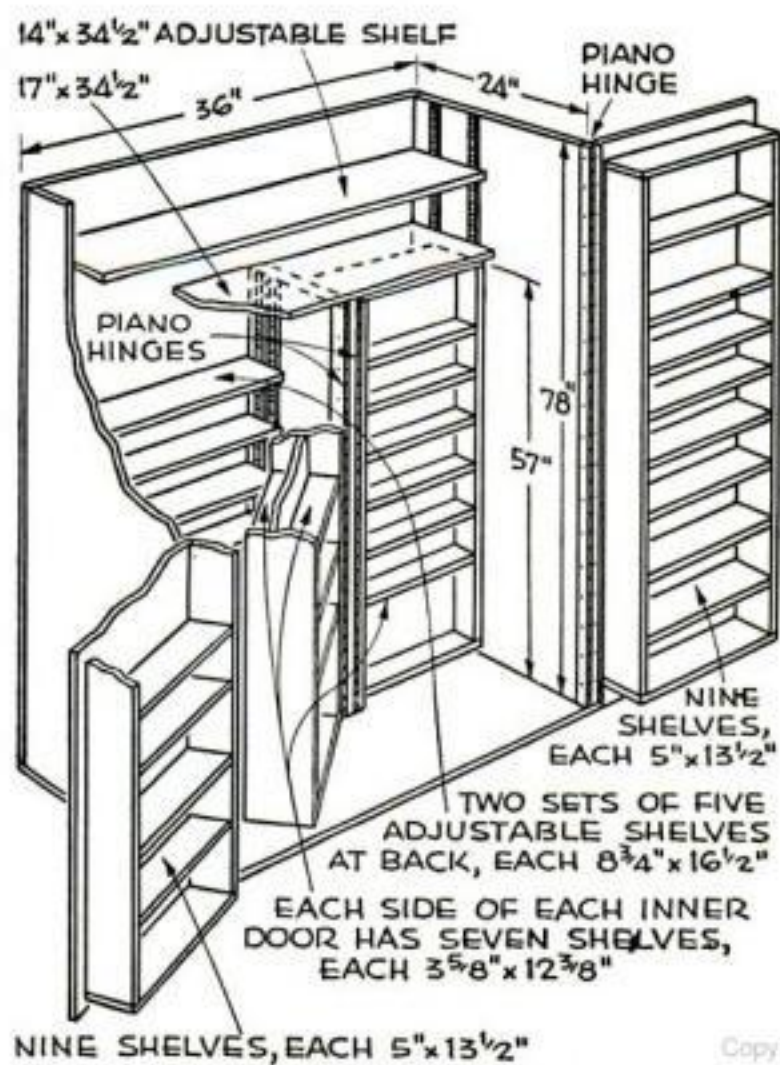
Here's a Home Supermarket on Hinges

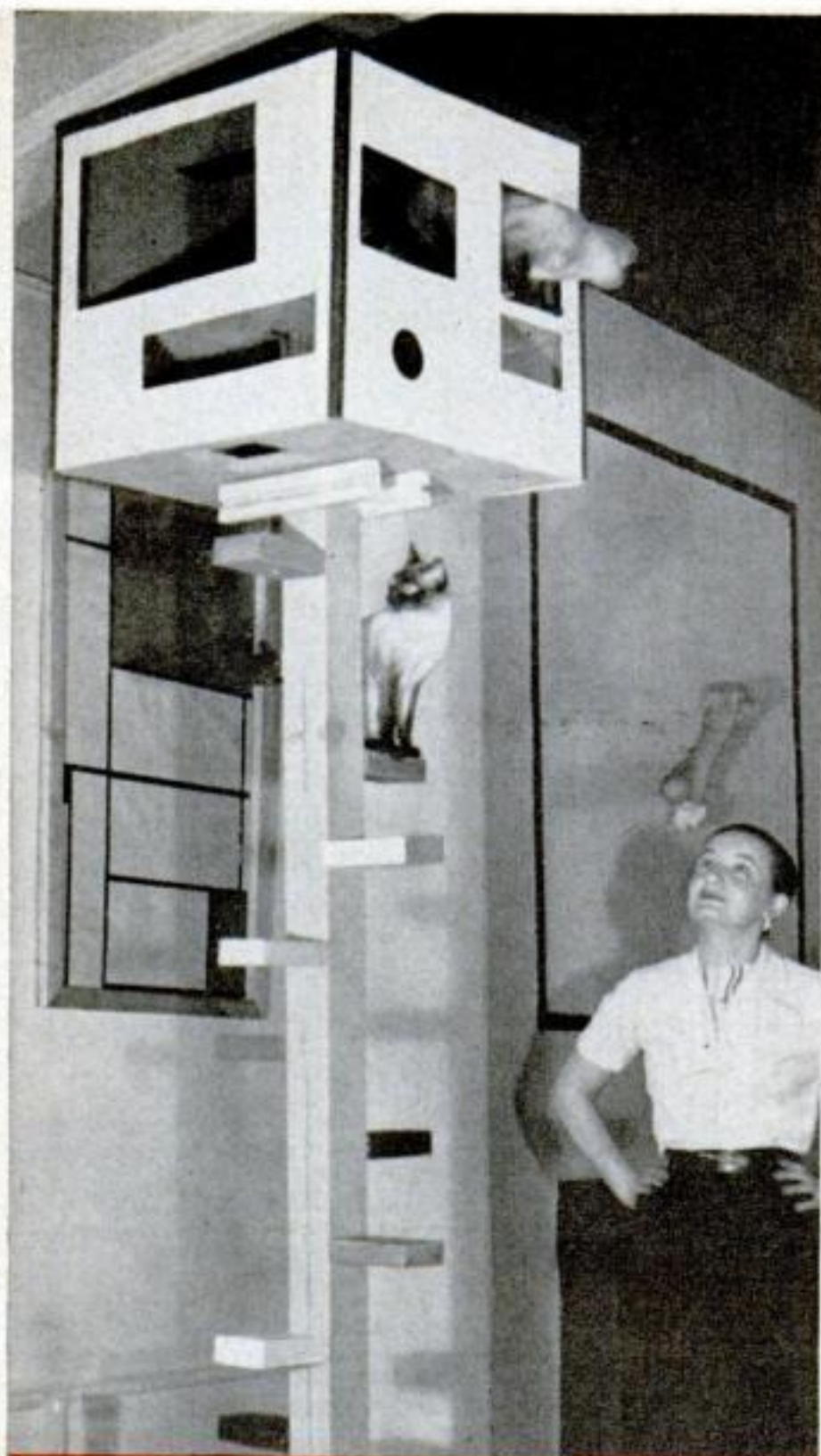
MORE than 70 feet of shelving—every inch of it usable—are hidden by the doors of this kitchen cabinet, occupying only a two-by-three-foot floor space.

Shelf-lined doors do the trick. Opening them reveals enough one-item-deep shelves to cover a 10-foot wall from floor to ceiling.

Almost everything you bring home from the supermarket fits the narrow shelves, with nothing hidden from view. The stuff that needs deeper shelves will fit above the inner door unit. Shelf edges are fenced with plywood to hold stored canned goods.

The cabinet is offered in 38 hardware and finish combinations by Quaker Maid Kitchens, Inc., of Temple, Pa. The firm includes it in their kitchen designs in both built-in and free-standing models.



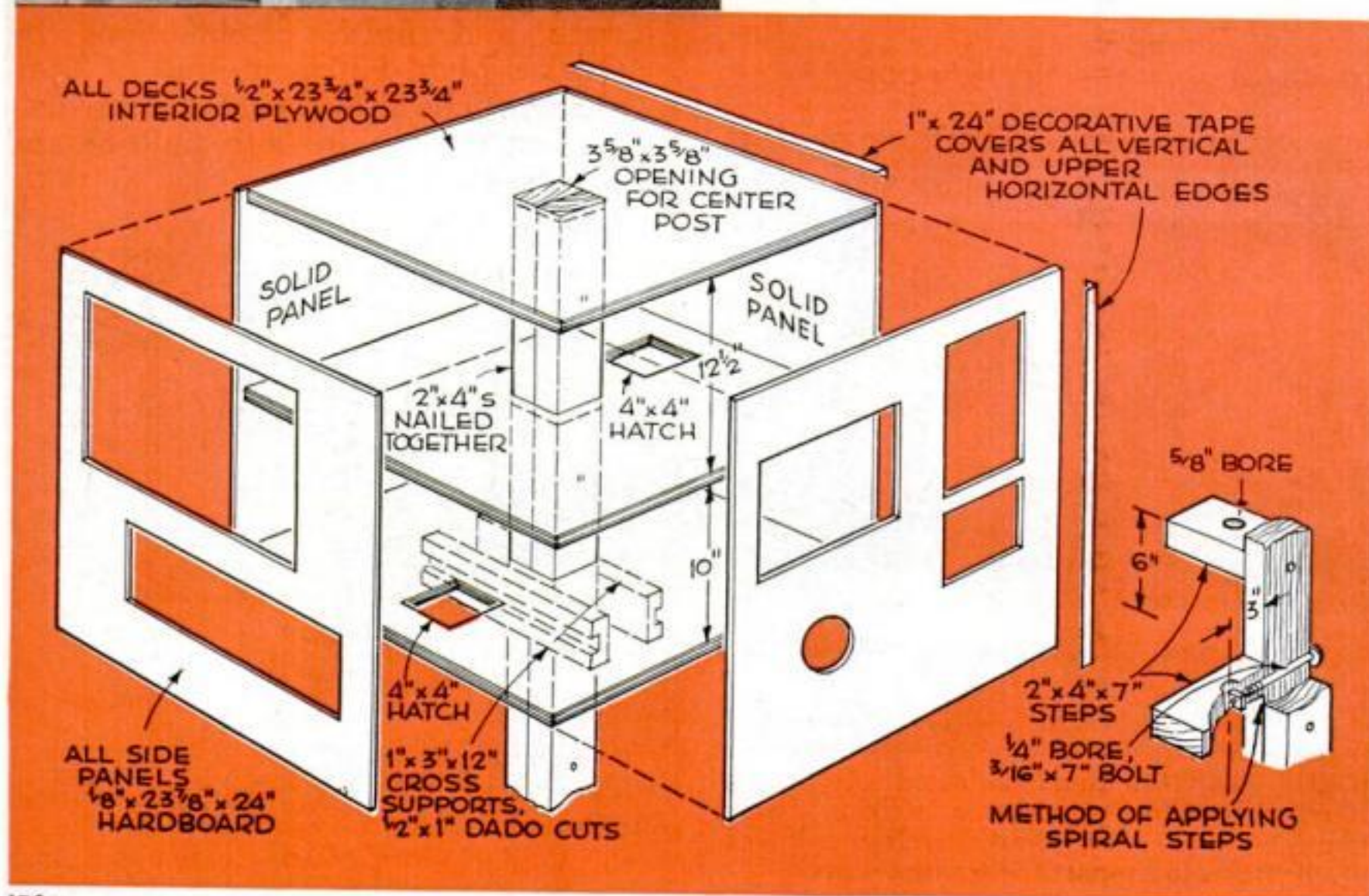


Penthouse for City Cats

CATS are incorrigible climbers and the trait can play havoc in a city apartment. Tired of replacing frayed drapes and vases toppled off the mantelpiece, we built this double-decked penthouse for our two Siamese pets.

It's perched at the top of a post that reaches from floor to ceiling of the living room. The "spiral staircase" approach is a series of projecting blocks, each painted a different color. Small hatches provide access to the decks above, with dadoed grooves in the supports below the lower one offering an entry assist.

Six lookout holes of various sizes, jigsawed in the side walls, give our feline friends unsurpassed views of the situation below. They're now as contented as any of their country cousins.
—Robert Gannon.





Short Cuts and Tips

FROM PS READERS



How to Make Doors from Stock Lumber and Glass-Fiber Panels

THE panel of corrugated glass fiber in this door gives you both light and privacy. The door has two frames—one made of one-by-fours, the other of one-by-sixes—glued and nailed together. The 2" difference makes a rabbet to receive

the panel, held by 1" #6 oval-head screws and washers. The door can be made up to 34" wide with a standard 26"-wide glass-fiber panel. Half-lapped joints formed by the double frames strengthen the corners.—*Paul Corey, Sonoma, Cal.*

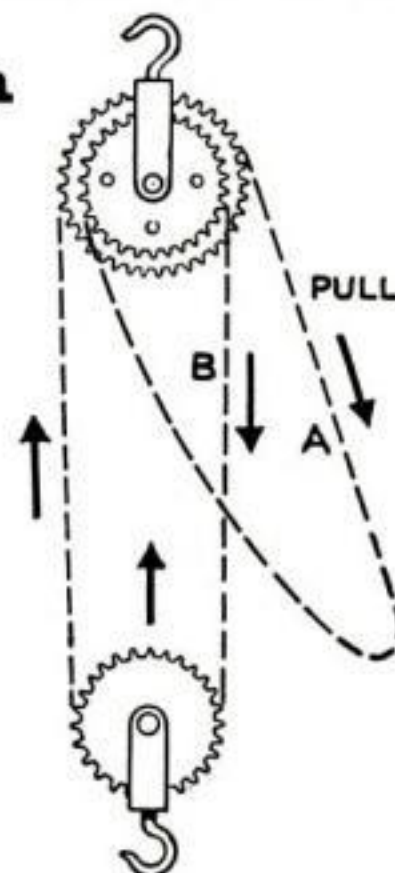
▶▶▶FUEL oil spilled on concrete can be soaked up by sprinkling fuller's earth generously on the area. Let it lie until it sweeps away cleanly, leaving no stain on the concrete.

▶▶▶WHEN I paint storm windows, I stack them to dry with wads of crumpled newspaper between the panes. That saves space and lets air circulate over the paint.—*John R. Hennen, Chicago.*

Answer to the Bicycle-Chain Hoist Problem on Page 168

IT WOULD not work. The two upper sprockets must be of different sizes. As the endless chain is pulled down at A, it tends to lift the lower sprocket with the load. But meanwhile, side B of the chain is dropped by rotation of the smaller sprocket (which is fixed to the larger). The net lift is the difference between the two chain movements: the more nearly the two sprockets are of the same size, the smaller the amount of lift but the greater the mechanical advantage gained.

Thus if the big sprocket has 20 teeth and the smaller 19, the lifting force will be 40 times the pull exerted on the chain. But if both sprockets are the same size, there will be no differential action between the two—and, of course, no lift.



Who Says a Light Meter Can't Lie?



THIS PRIZE SHOT COULD HAVE BEEN A FLOP because original reading, with meter held at camera, recorded brilliant white back wall. This would have underexposed girls and dog. Moral: Get in close so the meter reads only light from the subjects.

It can, and will, if you don't watch out. Here are situations where it might have—but didn't

By Phil McCafferty

A GOOD light meter can be a photographer's best friend. Trouble is, it can't think. So it calls 'em as it sees 'em. When the results are poor, you can usually blame one of two things:

- The meter tends to strike an average. A meter looks where it's pointed—often an area much larger than the camera lens covers—and totals up the brightness and shadow it sees. It delivers a neatly rounded average figure, with no regard for what may be the *important*

part of the scene. That part is up to the man behind the camera.

- The film doesn't "see" nearly as well as your eyes do and can't fully record extreme variations in brightness. When exposure is incorrect, you're being cheated out of detail or true colors.

You can make your light meter tell the truth by eliminating its opportunity to lie. It's that simple. Force the meter to read the light you want it to read. Nearly always, this means forcing it to read the light affecting the part of the subject that is most important to you.



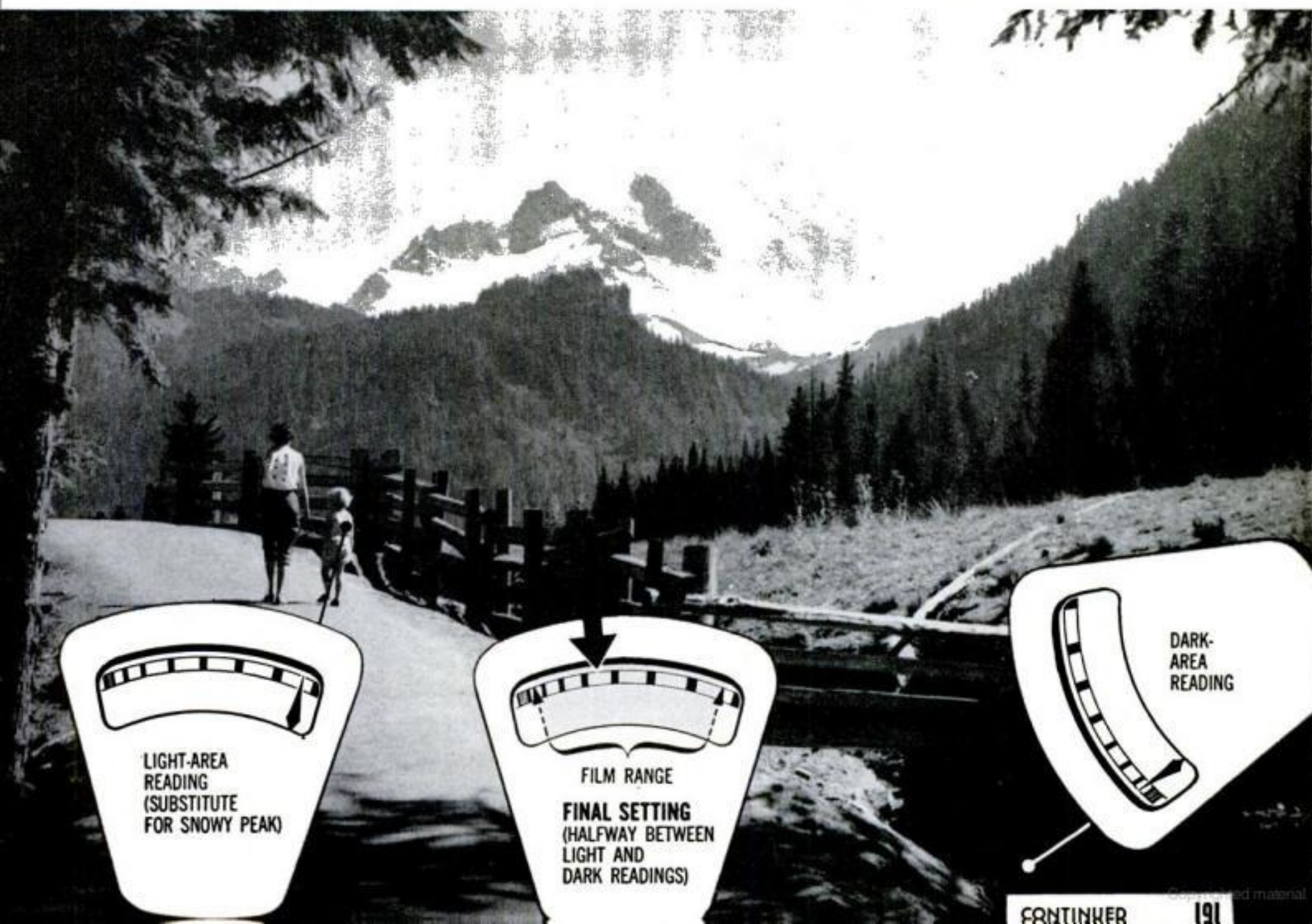
OPEN-SHADE SCENES give meters the least opportunity to lie because light is soft and diffused, and shadows are open, showing detail, or are nonexistent. But bright sun beyond shade will give falsely high reading, causing underexposure, unless reading is taken close to subjects. With an incident meter that measures direct light, be sure only shaded light hits it.

TO GET DETAIL in wide-contrast scenes, read lightest and darkest areas close up, or take substitute readings as above. Point midway between high and low readings will give good exposure, providing spread does not exceed



EXPOSING FOR THE SKY is the only way to capture full beauty of sunset and sunrise. To expose for both sun and clouds, average two reflectance readings—one pointing directly overhead, one at sun. Convert incident meters for reflectance readings. Foreground detail can be added by increasing exposure about one *f* stop, but at the cost of washing out sky.

film's range. If it does, shift toward more important end. Figure a range of three *f* stops on color and fine-grain b&w film, six on medium-speed b&w. Where there's leeway, adjust setting to best suit people or medium tones.



A "proper" exposure would have spoiled both of these pictures



HARD SHADOWS on this little girl's face would result if reading were taken off portion of face in bright sun. Underexposure would cause loss of detail in shadows. Best scheme is to average out readings on *both* sides of face. Fill-in flash can be used where shadows are so heavy that allowing enough exposure to soften them would badly overexpose the light tones.



DEEP SHADOWS in this shot, unlike picture at left, add to its interest. A normal meter reading, although technically "accurate," would have resulted in merely a picture of junked wagon wheels, instead of a striking study in texture and pattern. Decreasing exposure one full *f* stop, to make sure that little detail would show up, created the rich, sharp shadows caught here.

Four ways to keep your meter honest when it's tempted to fib



CLOSE-UP READINGS eliminate most meter fibs by excluding stray light. This is especially important with incident meters when light varies sharply from camera to subject, as here.



READ YOUR HAND when a subject is too far away to reach. Hold it not more than 5" from the meter at same angle as light hits subject and so meter doesn't read its own shadow.



TILT METER DOWN slightly when reading distant scenes to lessen influence of a bright sky. With incident meter, point it at camera and be sure the same light falls on it as on the scene.



SNOW AND BEACH SCENES are often overexposed because of terrific brightness of reflective surfaces. If you want texture in snow, as here, take close-up readings of light and dark areas, and expose one stop *less* than halfway point. For shadow detail, shoot at halfway point.



USE A BUILT-IN METER like a separate one by moving camera to subject for reading. With self-adjusting type, note lens opening at subject, then use flash control to lock opening.

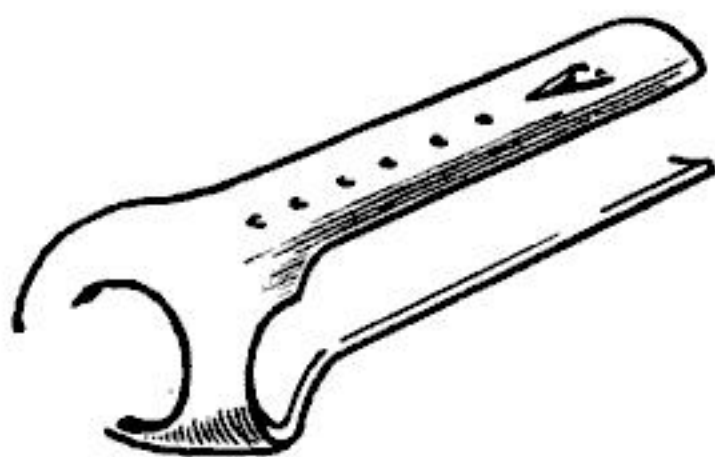
BACK-LIGHTED WATER, with sun coming toward you, tends to give higher reading (lower exposure) than is correct for scene's middle tones. For right middle-tone exposure, take substitute reading off your hand. If you want texture in water, however, use direct reading of scene.



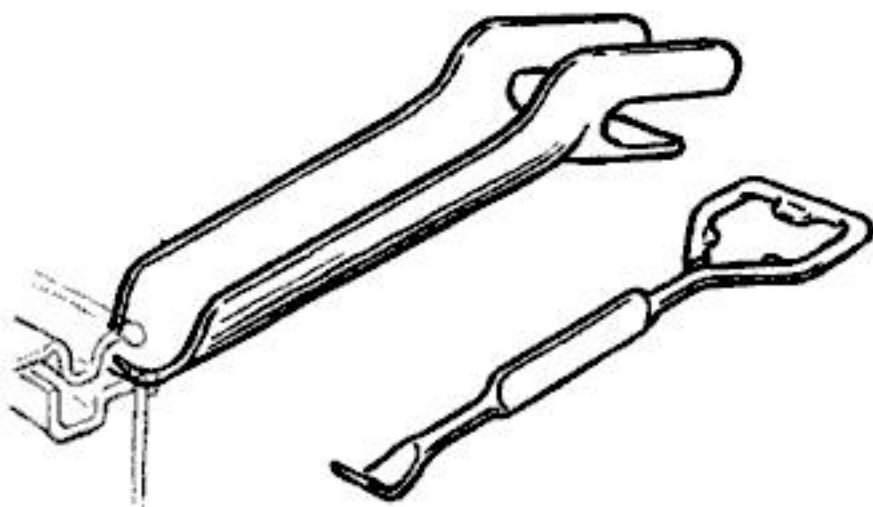
11 Special Tools

By Ernest E. Hickman

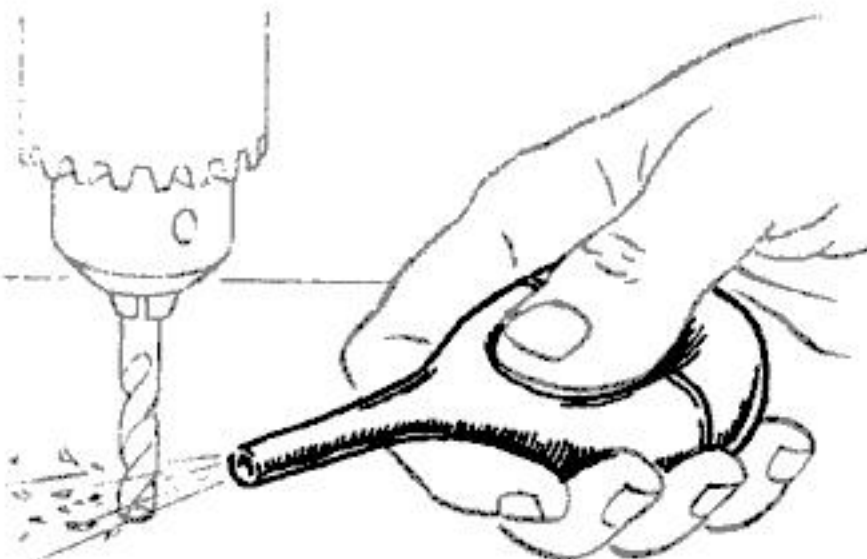
THESE small tools carry the "indispensable" label. They've earned it in widely separated trades and professions. Through constant use and improvement, each has been developed to perform a specific function the best and easiest way possible. But because their functions can be filled by makeshift substitutes, few of these tools find their way into home shops. The household jack-of-all-trades, however, will find that experts' tools quickly pay their way with savings in time and effort. And their way isn't expensive. Few cost more than a dollar; most of them far less than that. Some are advertising give-aways.



Electrician's cable ripper strips unarmored cable (type NM) without injury to insulation. Place ripper over cable, squeeze and pull to slit sheath. First use is worth 25¢ cost of the tool at electrical-supply and hardware stores.



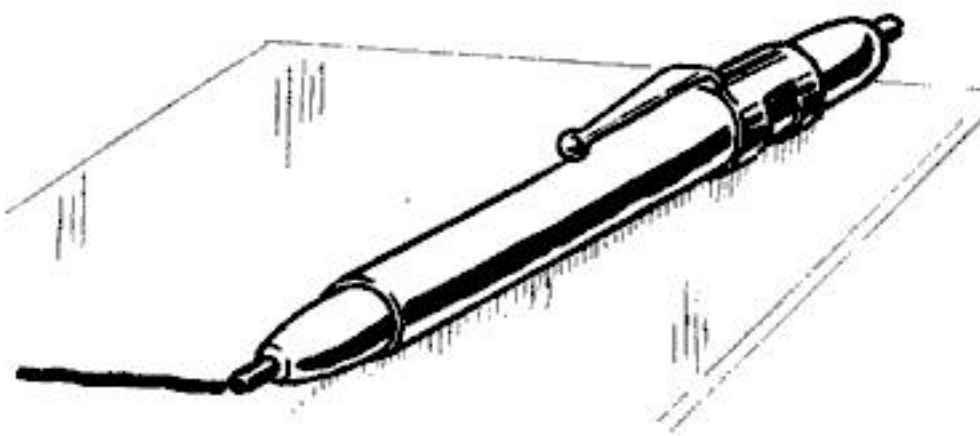
Painter's can opener has upturned tip to get beneath can lip. Tool opens paint cans faster and easier than screwdriver, leaves top undamaged for tight seal. Sometimes a give-away, lid-lifters can be bought for about 25¢ at paint stores.



Physician's ear syringe squirts coolant for drilling and grinding. Dry, it puffs dust out of hard-to-reach places such as camera interiors, dowel holes. Drug stores offer rubber or plastic syringes in several sizes, most for less than \$1.



Steamfitter's chain wrench grips all household pipe fittings and irregular shapes, saves rental or purchase of infrequently needed large pipe wrenches. Small size sells for about \$4 at most auto-supply, tool and hardware stores.

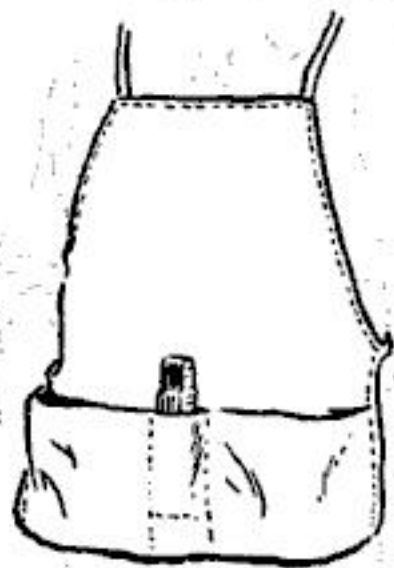


China-marking grease pencil writes on metal or glass, can be rubbed or washed off. Handy to identify parts, indicate hard-to-see pencil marks on shiny metal. Pencils sell for 10¢ up, at stationery and variety stores, come in many colors.

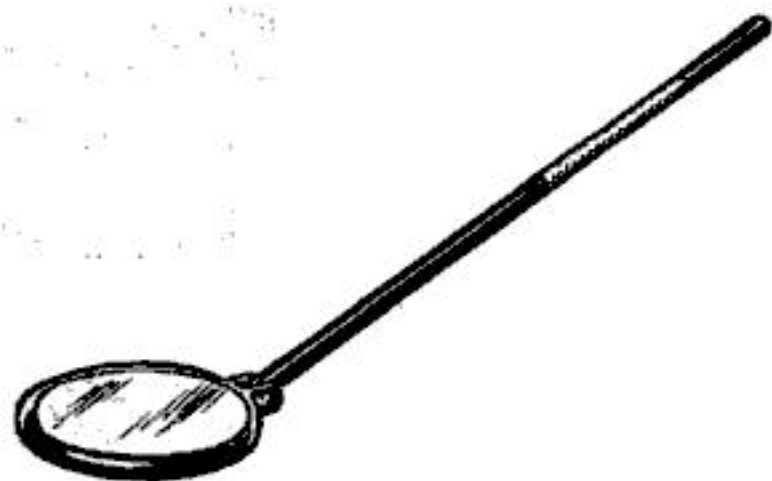
It Pays to Own



Aircraft-riveter's skin clamps grip from one side through predrilled pilot holes. You can get them at airport-supply stores, factory shops. At surplus sales, they often sell for less than 15¢, but may require an outlay for special pliers.



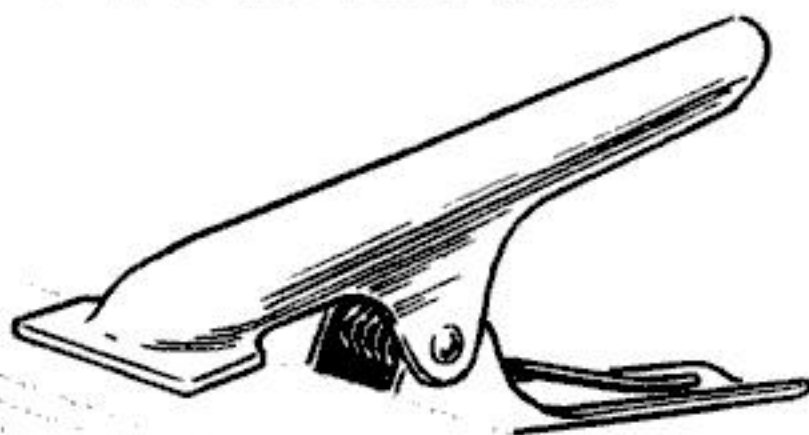
Carpenter's nail apron saves trouser pockets by holding ever-elusive chuck key, pencil, nail set, rule, other small tools. Or it will hold nails for big jobs. Lumber yards and hardware stores have several types from 35¢ upwards.



Dentist's mirror inspired heavier-duty industrial inspection types to put your eyes where your head can't reach. Many variations available, including one with self-contained light. From 35¢ at radio-, auto-, factory-supply stores.



Mason's tuck-pointing trowels come in several widths, are ideal for filling voids in mortar joints. Use them wherever a regular trowel won't fit or where you need a straightedge. From \$1.25 at most hardware stores and lumber yards.



Welder's clamps are oversize versions of familiar spring clothespins. Placed with one hand, they make good "third hands" when working alone. They come in several sizes, cost 50¢ up at hardware, auto-supply, welding-supply stores.



Jeweler's loupe gives one eye a magnified close-up, leaves other one normal. Clip-on models fit regular eyeglasses. Prices start at \$1 for imported ones at tool, hobby, jewelers'- and watchmakers'-supply stores. Some models fit both eyes.

Short Cuts and Tips

FROM PS READERS

Easy-Cleaning Window Wells

AN EASY way to clean out leaves and trash collected in your basement-window wells is to lift the stuff out in custom-fitted baskets.

Make the baskets of hardware cloth—one for each well. Snip out the corners of a sheet with tin shears or wire cutters and bend up the sides. For rounded edges, make cuts at 7" intervals



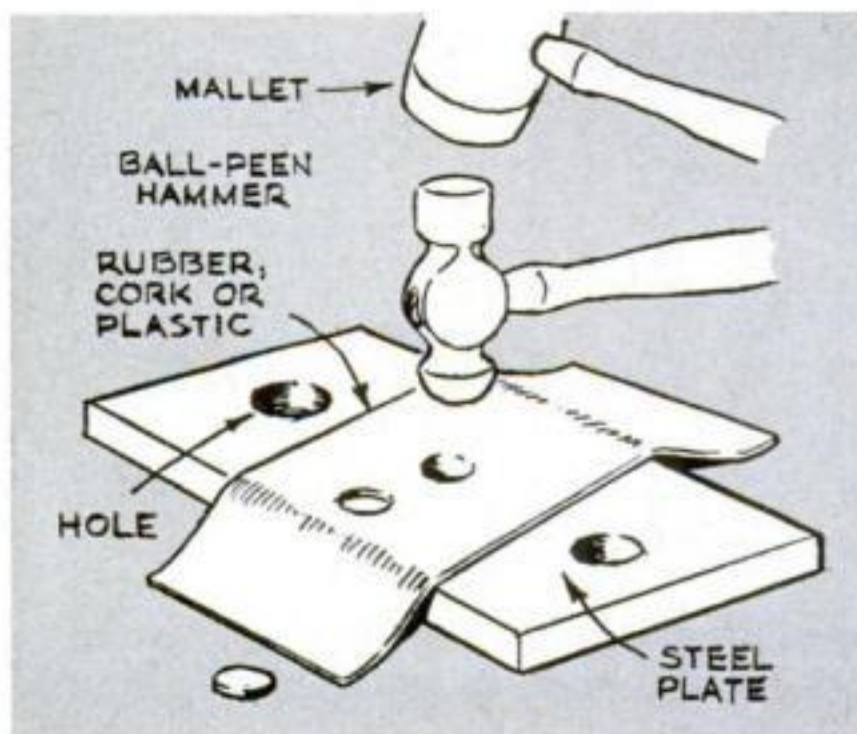
so the wire overlaps and fits snugly at the top.—*Ruth Bauman, Somerset, Pa.*

Oil-Can Spout Squirts Glue



AN OIL-CAN spout makes it easy to pinpoint dabs of glue, and saves waste and mess. Many standard-size spouts can be press-fitted into the tops of glue cans. A small ball of putty or calking compound will plug the spout when the glue is stored away.—*Ken Murray, Colon, Mich.*

▶▶▶ AVOID placing a television set too close to a house thermostat. The heat it generates may keep the thermostat's contact points open—and the furnace idle—when room temperatures are well below that for which the indicator is set.—*Charles V. Mathis, Wildwood-by-the-Sea, N. J.*

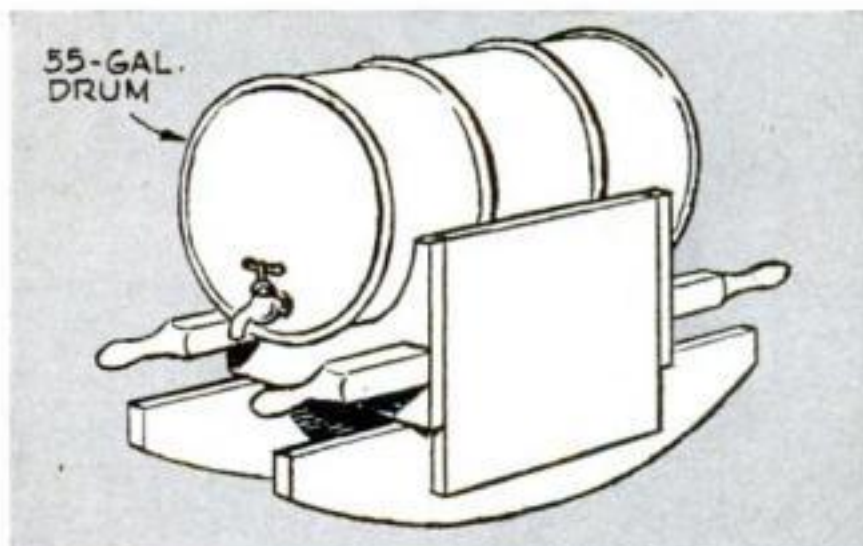


Punching Soft-Material Disks

A SIMPLE way to cut small disks or washers from rubber, cork or other soft material is to punch them from sheets. Place the sheet stock over a hole in a steel plate, and cut the material by pounding with a ball-peen hammer.—*Hugh Lineback, Stillwater, Okla.*

Barrel Agitator for Chemicals

A MINNESOTA state park uses this barrel on rockers to get more uniform mixtures of DDT and other chemicals. The barrel is equipped with two steel-tired wooden rockers. The handles make agitation easier and also afford a means by which the rocker may be easily carried from one place to another. Tipping the device makes filling a bucket easy, too.—*William Ludwig, St. Croix State Park, Minn.*





OPEN DOOR REVEALS COMFORTS—chair, sheltered cab, protected shelf for shells. The original blind weighed less than 100 pounds.

How a hunter built a

Portable Duck Blind

ARE those ducks always just out of reach of the blind? You can end that trouble with this portable job.

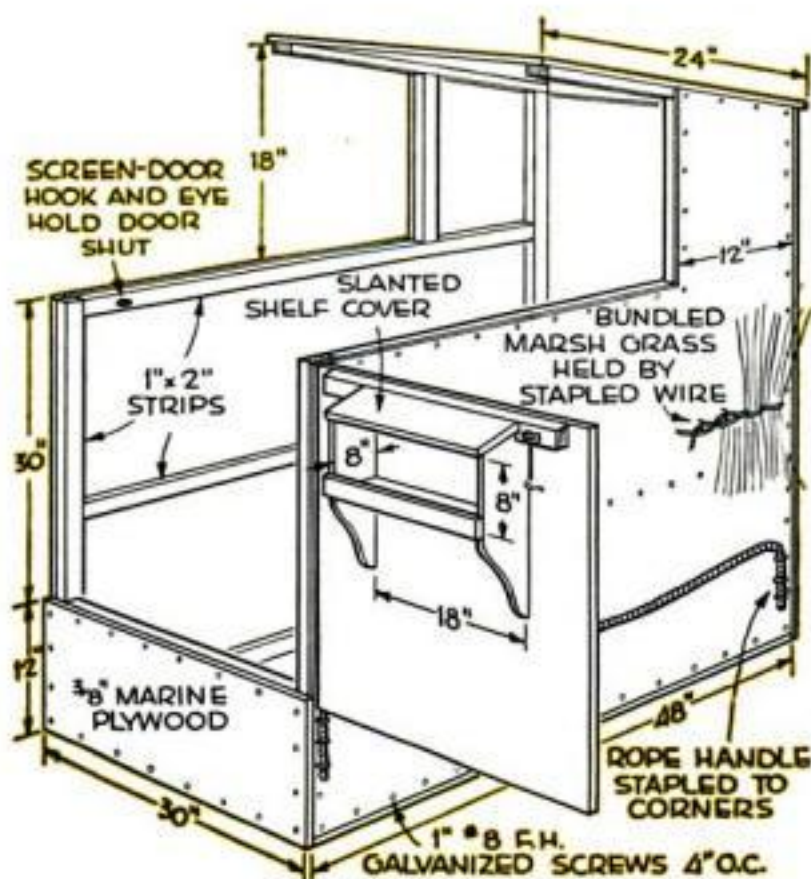
One man can float it on only a few inches of water. Or two men can pick it up and carry it. The blind is boarded only when grounded, however. It's too unstable to use as a boat.

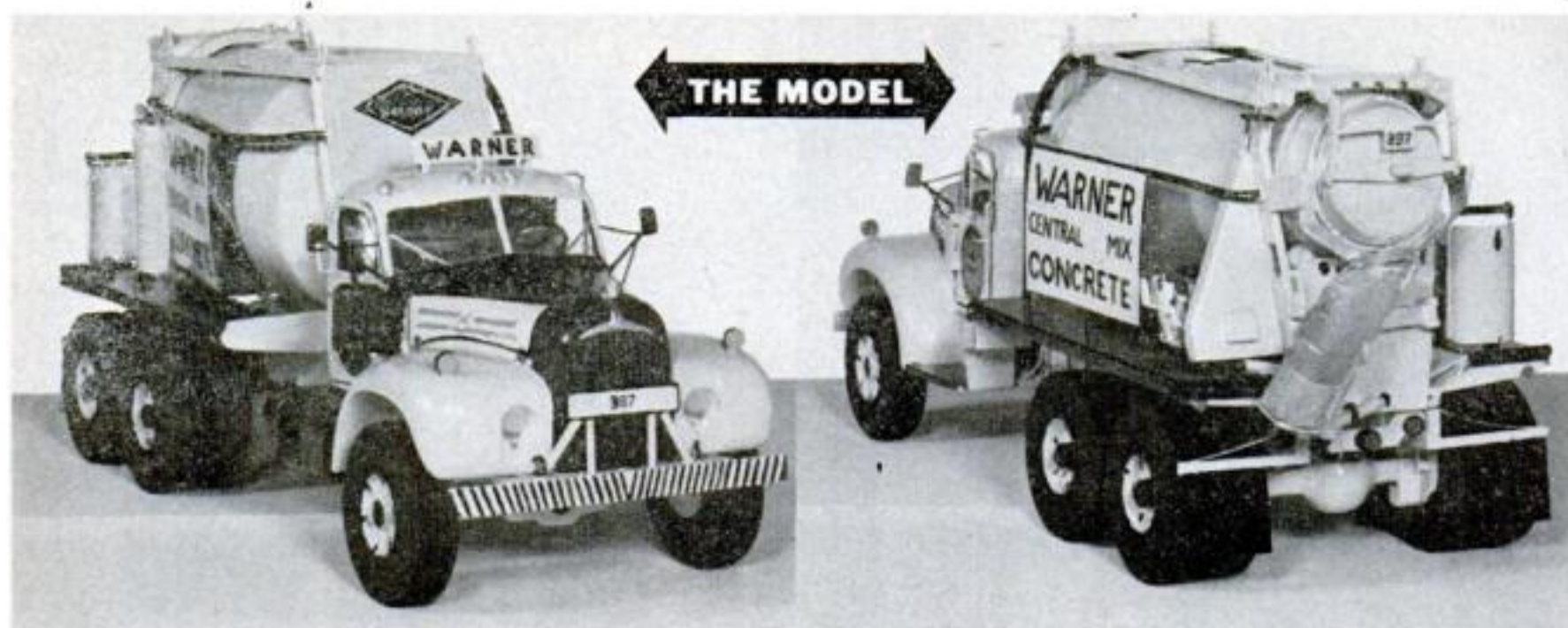
Marsh-grass camouflage hides a comfortable chair and generous weather protection. The half-roof keeps rain and snow away from the hunter's neck, but leaves him room for unhampered shooting. A shelf keeps shells dry and handy.

As built by Arthur Dierker of Chestertown, Md., the blind was equipped with windbreaks made from old auto side curtains. He built the rest of the blind from $\frac{3}{8}$ " marine plywood, stiffened and joined at the corners by inch-wide strips ripped from two-inch plank. Stock one-by-two would do equally well, however. Marine bedding compound and closely spaced screws seal the plywood seams.



WATERTIGHT BOTTOM makes blind easy to move in shallow water. The blind is camouflaged by bundled grass stapled to its plywood sides.





Truck Driver Models His Own Truck

BUILDING a model of a B42 Mack concrete mixer was a truck-driver's holiday for Richard M. Plude. That's because his finely detailed miniature is an exact reproduction of the full-scale rig he's been wheeling in and around Chester, Pa., for the past year.

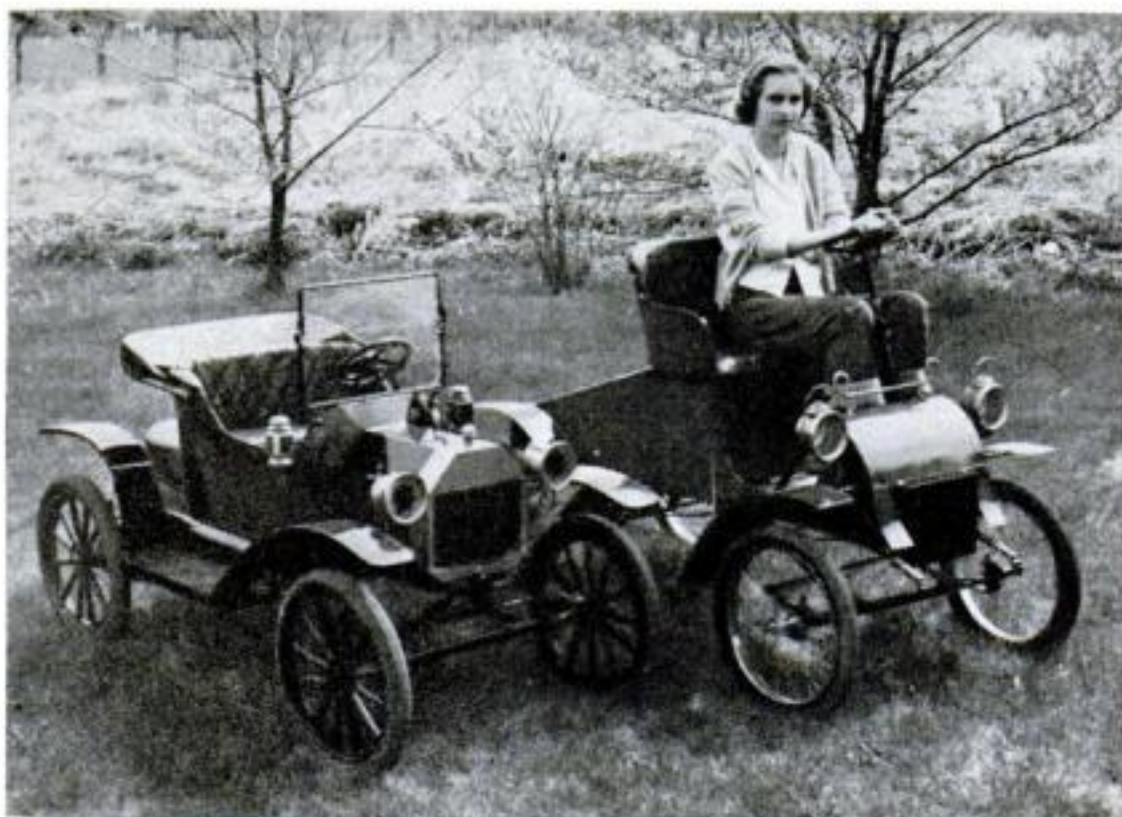
Twenty-six years old, Plude admits he took up modeling trucks long before he got his first job driving highway haulers. But his practical knowledge now helps him in his hobby craft. Along with the mixer, his collection of authentic midgets includes a DC907 Autocar tractor and



trailer, an RCTD International tractor, and a 9000-series White diesel. The $\frac{1}{2}$ "-scale models were made mainly of balsa and white pine. For the tires and other wood turnings, birch and similar close-grained hardwoods were used. All parts were sealed with shellac and carefully sanded to a metal-smooth finish before high-gloss enamel was applied.

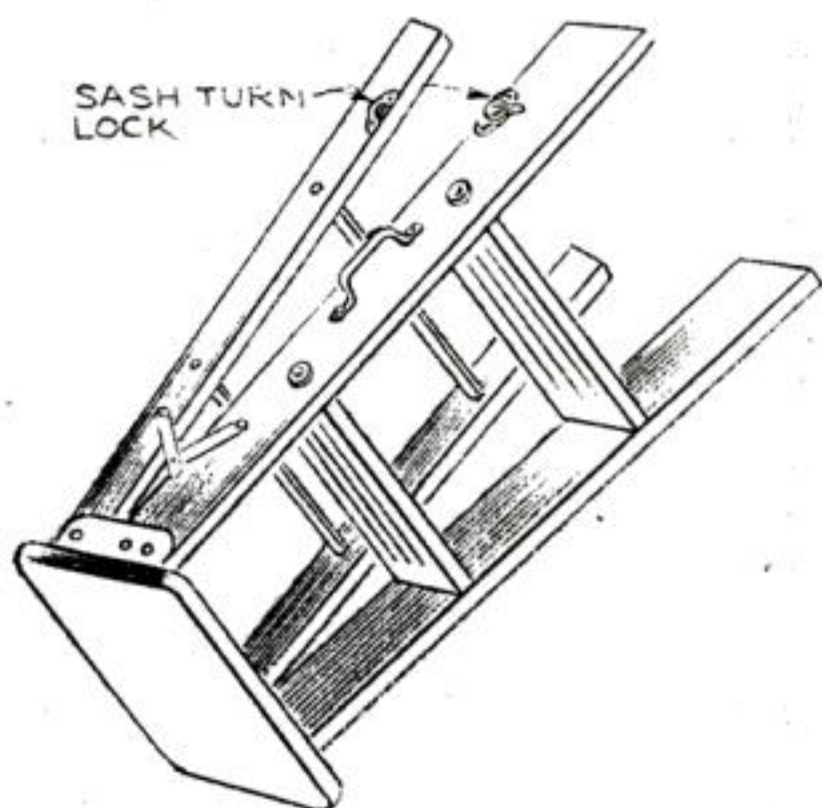
Big Riding Models of Classic Little Cars

JOHN KUCHERA, of Sherman, Wyo., applied his modeling skill to one-third full-size copies of antique cars. His handsomely crafted 1903 Oldsmobile and 1913 Ford runabout are impressive performers, too. Powered by three-horse one-lungers, they whisk his 14-year-old daughter around the family plot at 10 and 17 miles per hour respectively. The Olds has a slip-belt transmission; the Ford, a more efficient centrifugal clutch.



Short Cuts and Tips

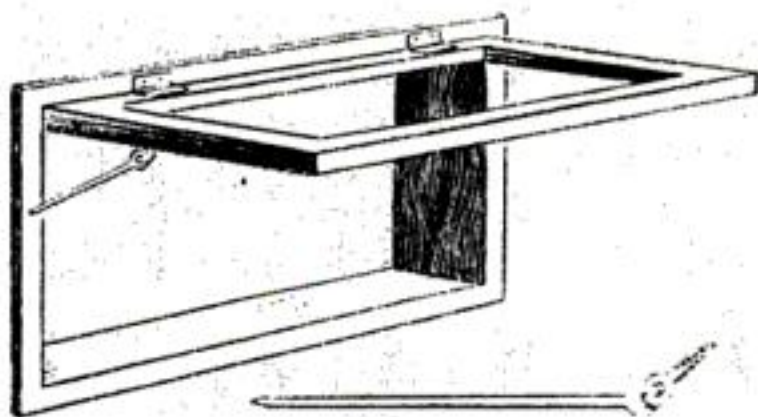
FROM PS READERS



Packaging a Stepladder

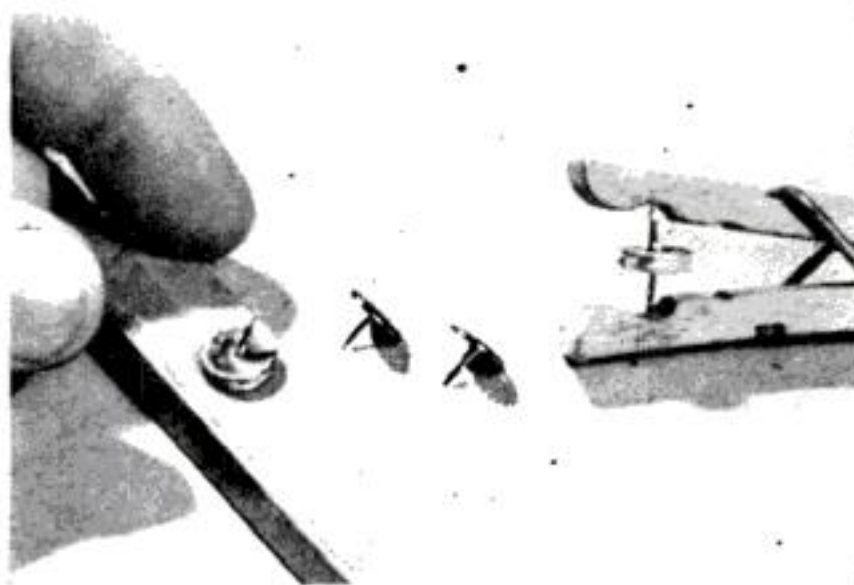
CARRYING or storing a stepladder can be made easier by holding the legs together with an ordinary window-sash lock as shown. A handle screwed to one side at the balance point helps, too.—*Murray W. Telsworth, Holly, Mich.*

▶▶▶ WHEN I have to make cold-weather car repairs in my unheated garage, I put a heat lamp in an extension cord and hang it above the spot where I'm working. In addition to warming my hands and taking the chill out of metal tools and parts, the lamp provides good light for my work.—*Ed Stribley, Sioux City, Ia.*



Permanent Prop for Cellar Sash

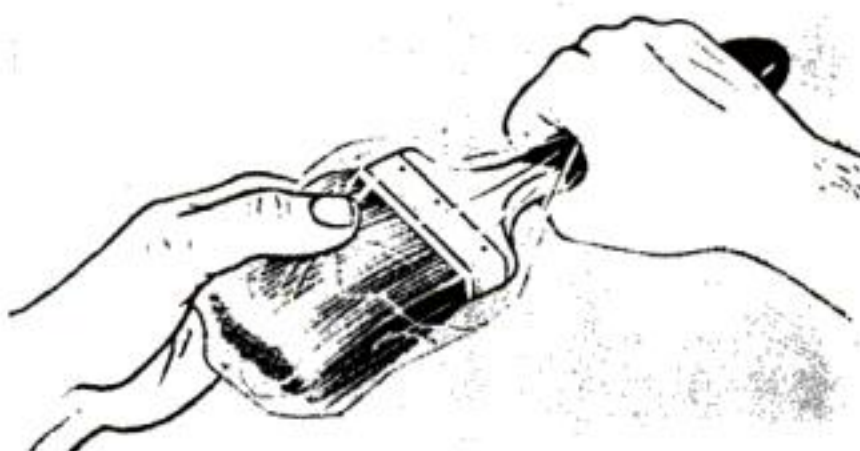
MAKESHIFT props to hold basement windows open can be eliminated by a length of stiff wire or rod. Hooked into a screw-eye on the outside of the sash, the prop hangs outdoors. When the window is raised, the prop is swung against the frame to support the sash. A sharpened point keeps it from slipping off the frame.—*G. E. Hendrickson, Argyle, Wis.*



How to Make Pin-Up Pictures

You can make pin-ups out of small pictures. Solder two all-metal thumbtacks together head-to-head, holding them in a spring clothespin. Then push one point into the picture frame, the other point into the wall.—*K. Mathis, Detroit, Mich.*

▶▶▶ AFTER I lost a plastic control knob from my outboard motor, I made a substitute from a plastic bottle cap. I filled the cap first with epoxy putty, then positioned it on the threaded lever. The new knob is larger than the original and easier to grip, even when my hands are wet.—*R. M. Woodbury, Natick, Mass.*

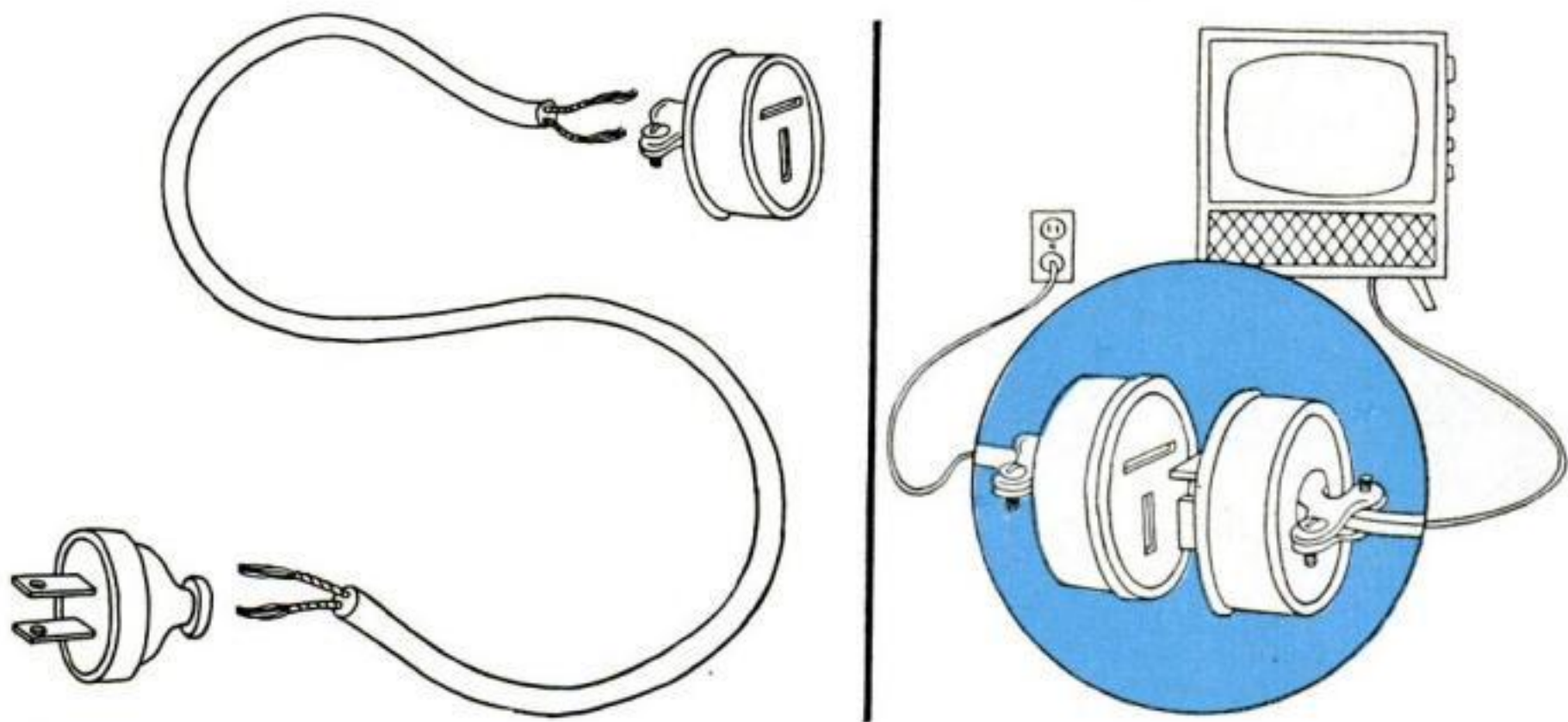
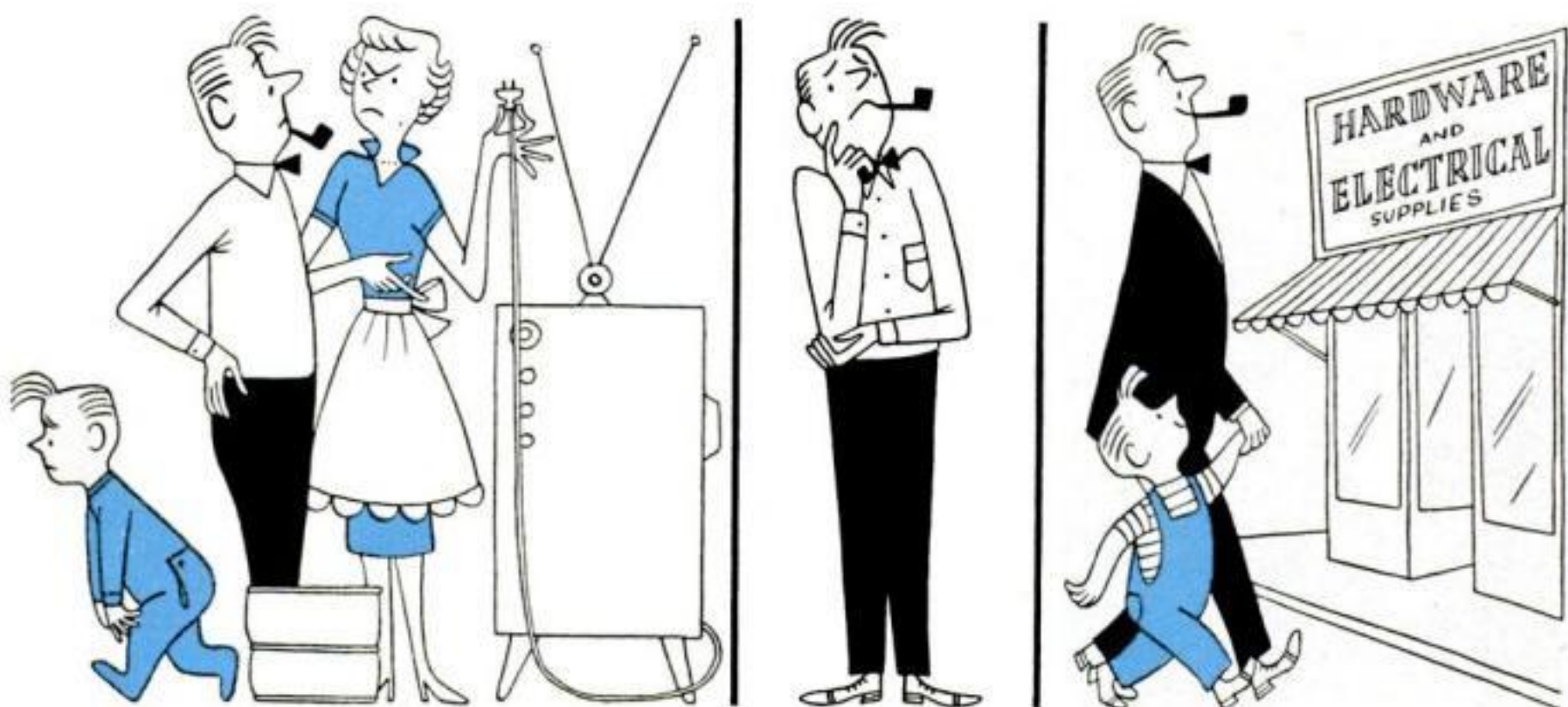
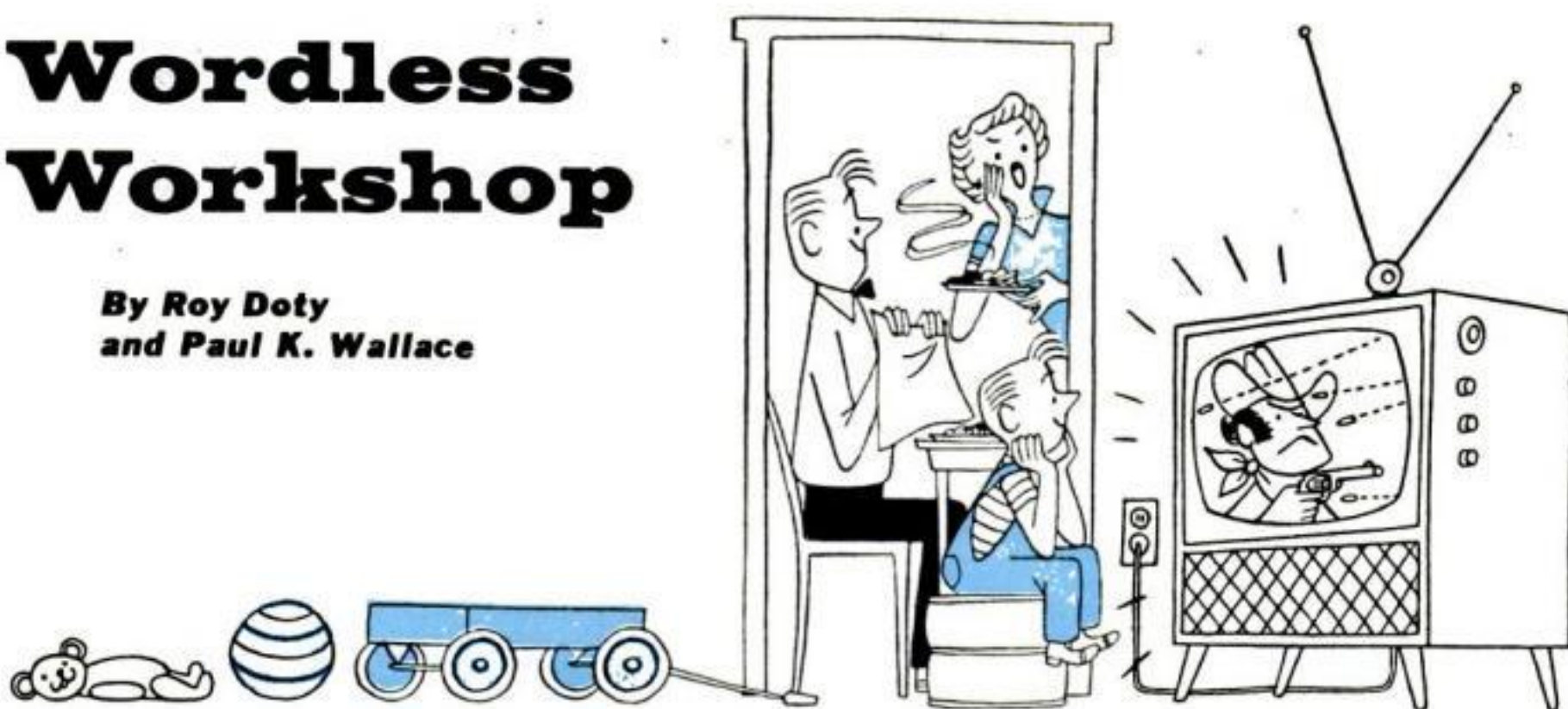


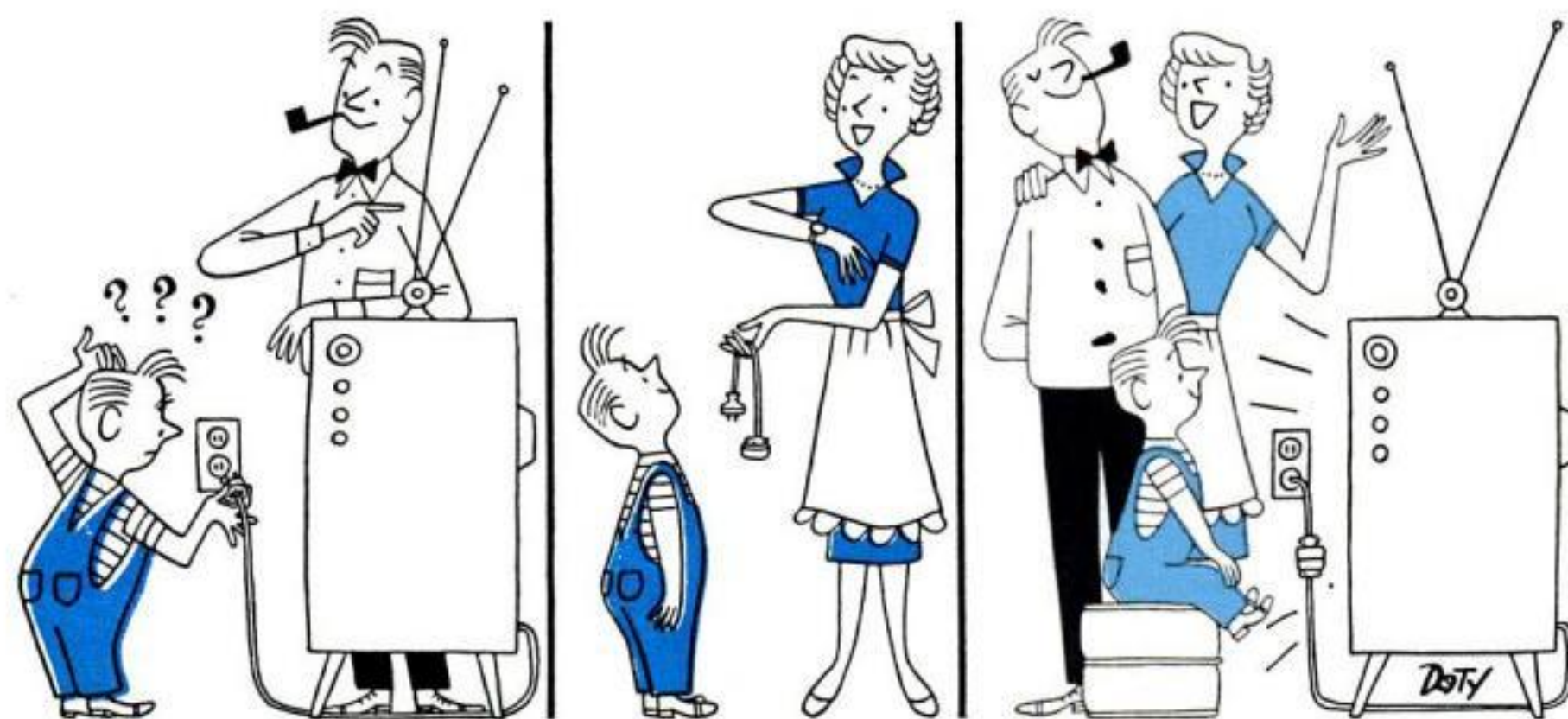
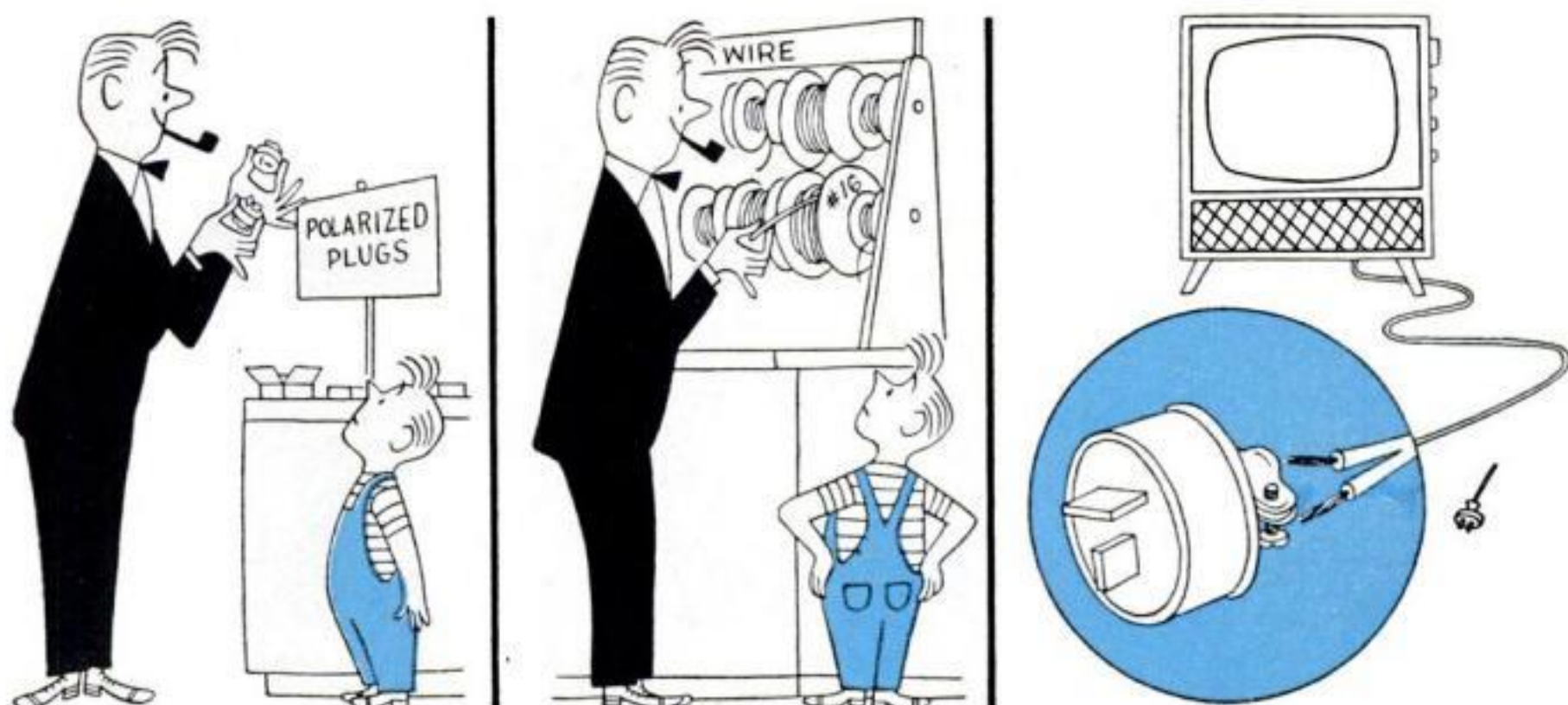
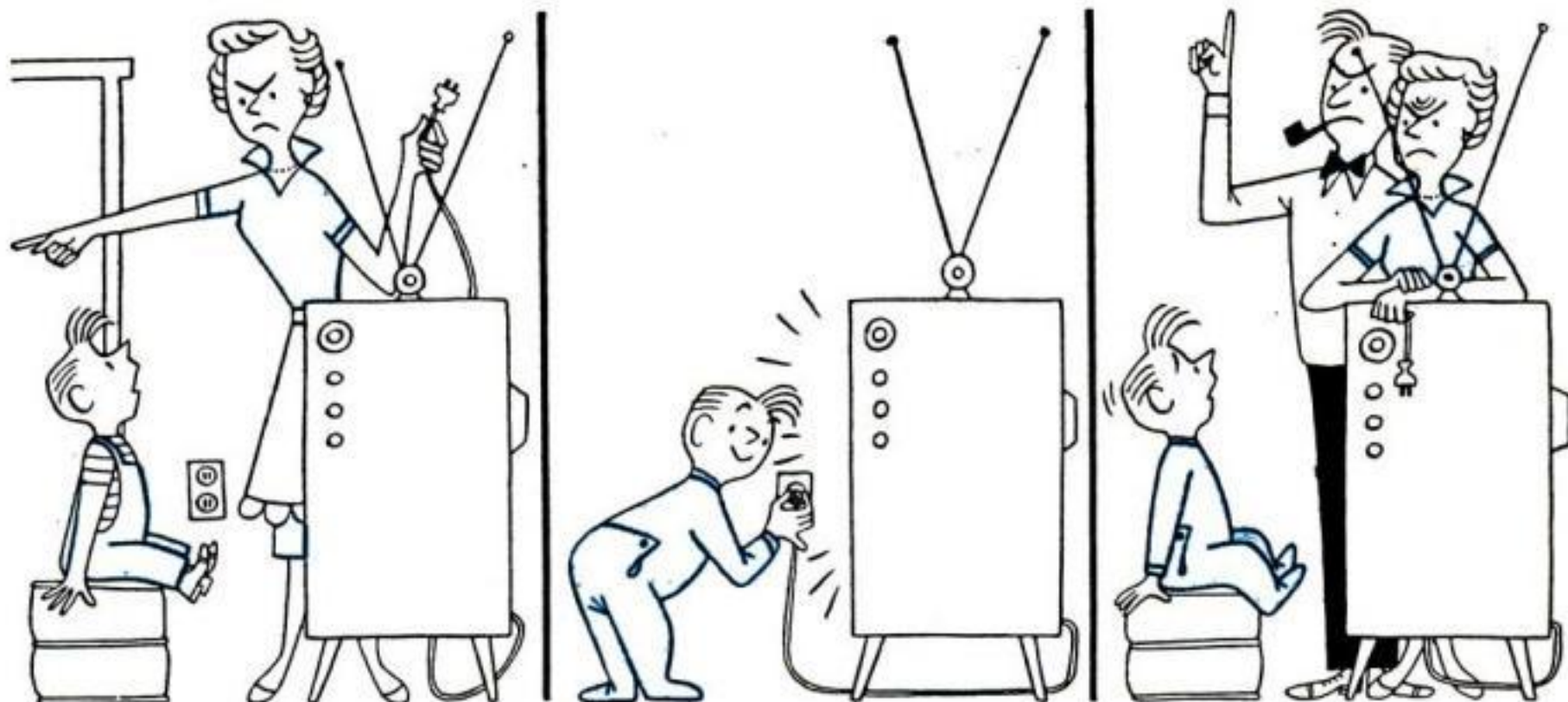
Cleaning Brushes in a Bag

EVER wish you could knead strong solvent through paintbrush bristles without getting it on your hands? You can if you put the solvent in a tough plastic freezer bag, then tighten the bag around the brush handle. The pliable, transparent plastic lets you see what you're doing, but keeps your hands clean and safe.—*Duane C. Honsowetz, Bath, Mich.*

Wordless Workshop

By Roy Doty
and Paul K. Wallace



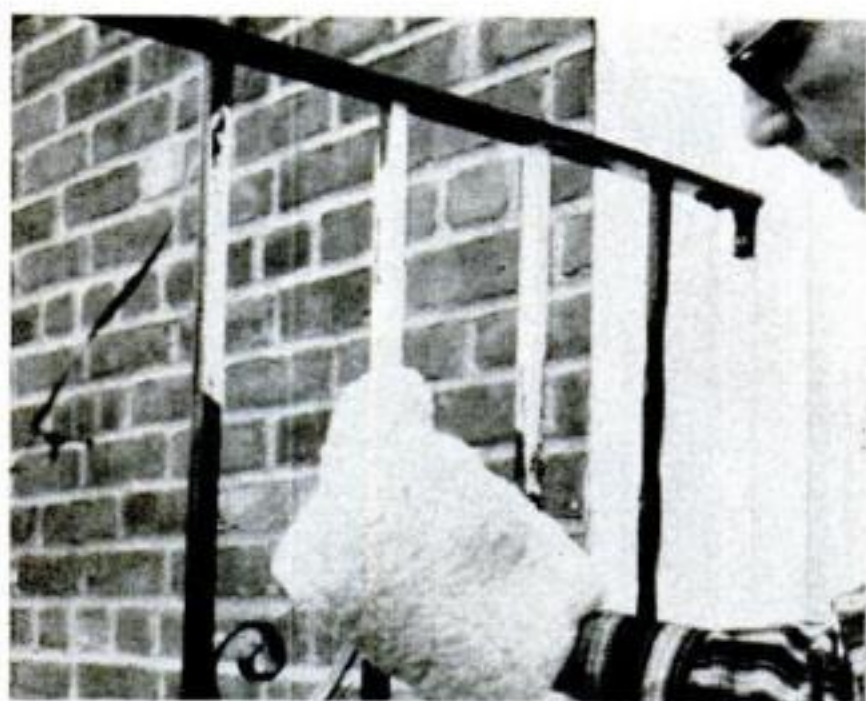


*Here are ways you can use a
lambskin mitt to supplement
brush, roller, even a spray gun*

Tips on Painting with a Mitt



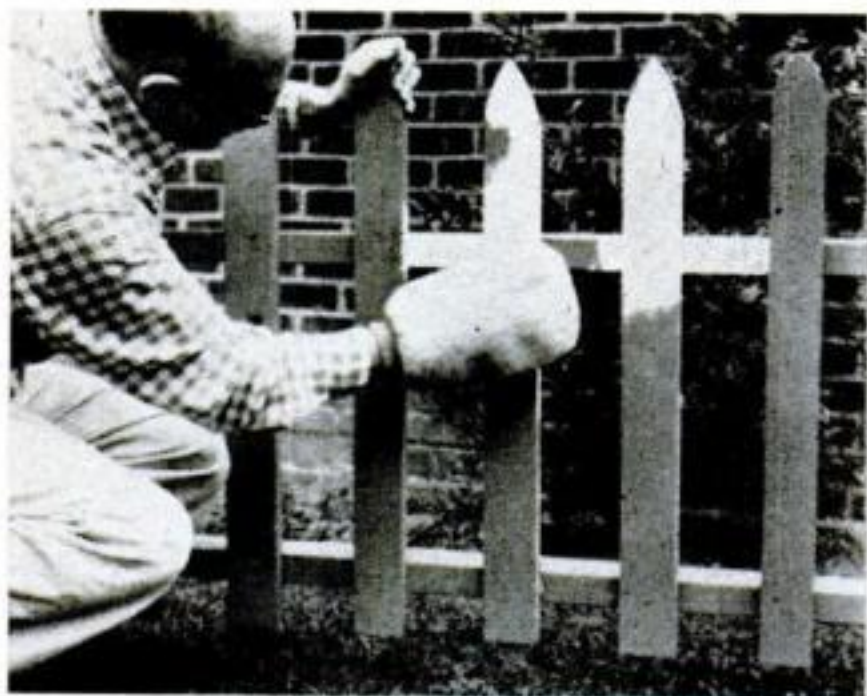
PAINTING A CHAIR is much less tedious when you use a mitt. Encircle one of the rounds with the mitt, make a swipe up and down or back and forth and the entire round is painted.



GRILLEWORK at front door is a logical spot to use mitt. And you can apply paint with the back of the mitt as well as the front, a point to remember for painting scrolls like this.



DOWNSPOUT is another of the many places around a home where you might want to use a mitt. Mitts are available with and without a thumb. The latter type is usually reversible.



A PICKET FENCE? Close your hand a bit and apply paint to the edge of the picket at the same time you apply it to the surface. (Photos courtesy of Bestt Rollr Co., Fond du Lac, Wis.)



SUPPORT POST in the basement, or any exposed plumbing pipe—use a paint mitt to do the job. It's always handy on a curved surface. The mitt is easily cleaned, just like a paint roller.

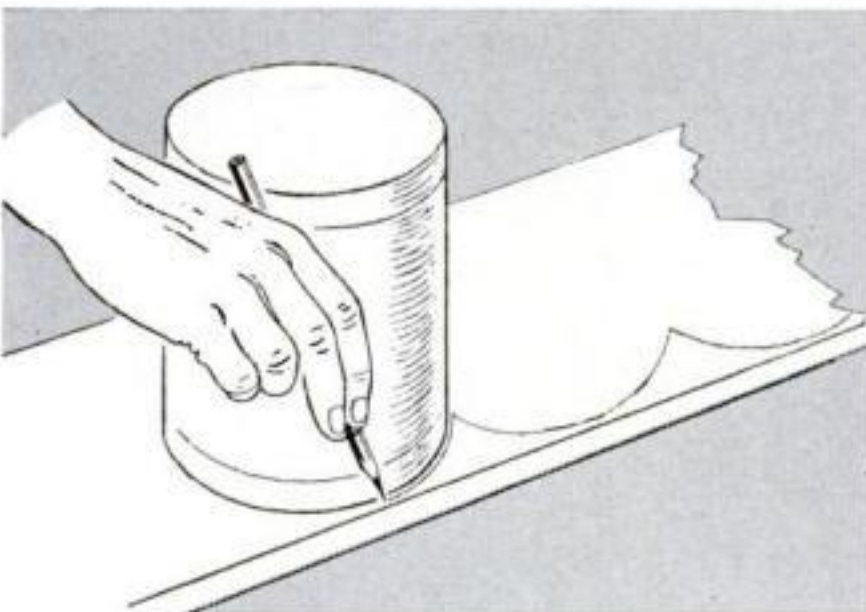
Short Cuts and Tips

FROM PS READERS



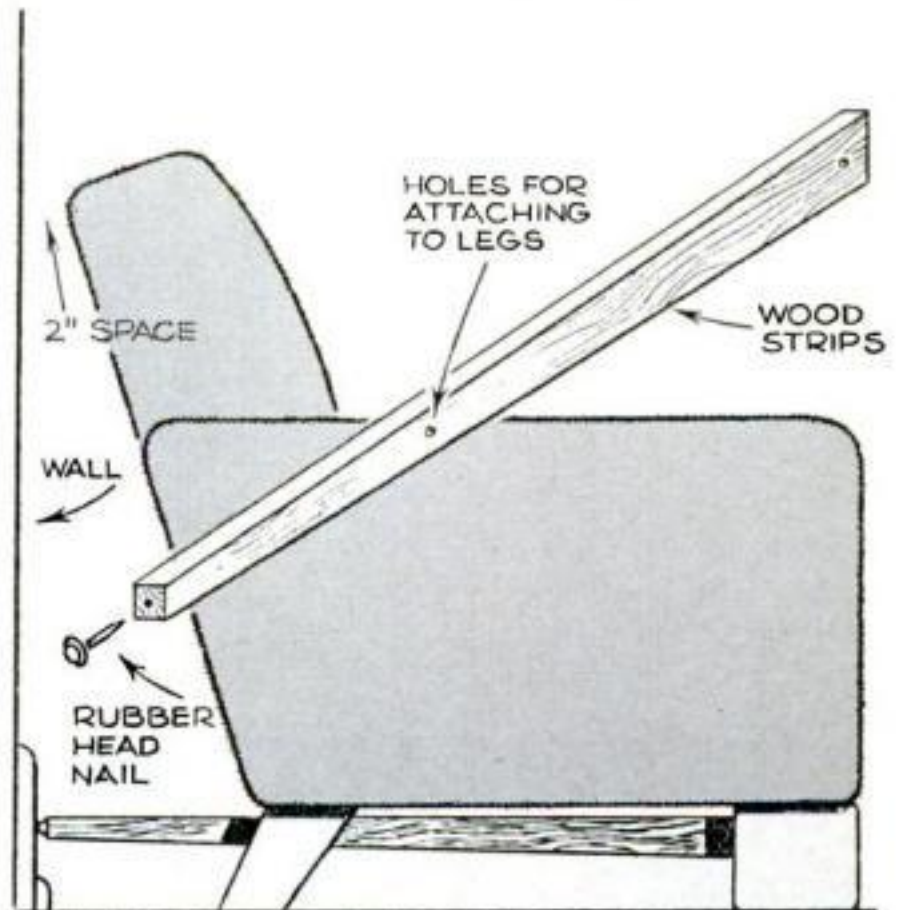
Inlaid-Wood Sandwich Board

THIS sandwich board with an inlaid Old English initial can be made from a $\frac{3}{4}$ "-by- $8\frac{1}{2}$ "-by-15" piece of hard maple. The initial is routed or carved for a depth of $\frac{1}{8}$ " and filled with walnut wood putty. Put in enough putty to form a raised ridge $\frac{1}{16}$ " and then sand the entire board until the inlay is flush with the surface.
—Frank Lawrence, Portland, Me.



Template for Scallops

AN EMPTY tin can of required size makes a good template when you lay out scalloped edges for plywood valances and similar projects. Hold the can on the spot and mark a line for the coping saw.
—Ross Plaisted, Painesville, Ohio.



Spacer Strips on Furniture

HEAVY pieces of furniture shoved back against a wall will show wear, and mark the wall in time. You can avoid this by screwing inside the legs or the underside of the frame a light strip of wood long enough to strike the baseboard and leave a 2" clearance. Drive a rubber-head tack in the end to keep from marring the baseboard.—Harold Jackson, Kankakee, Ill.



Padded Binoculars

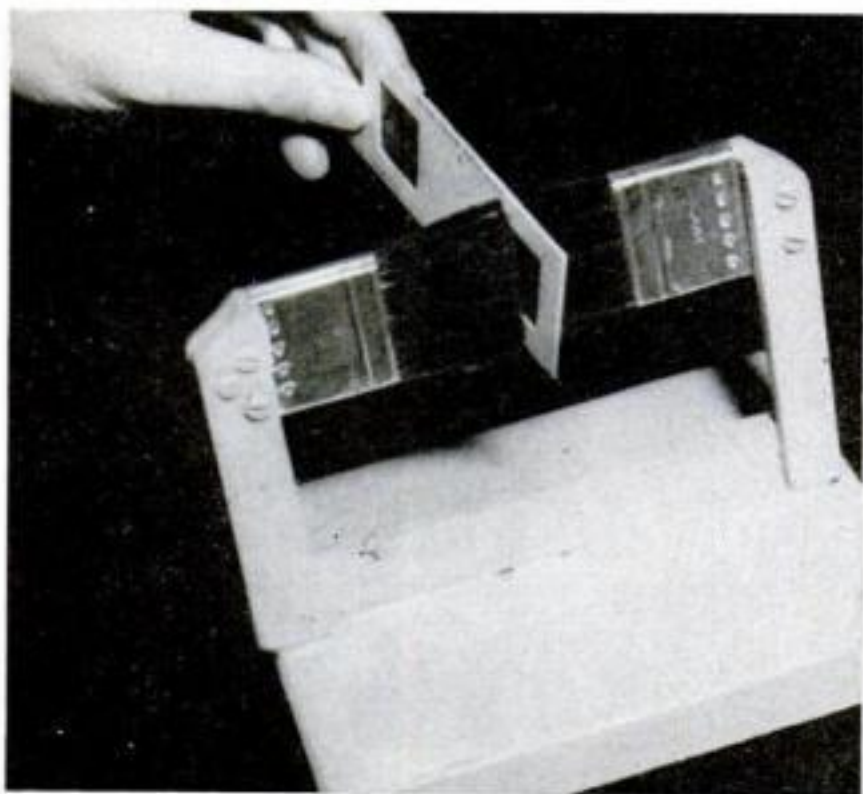
IF YOU wear eyeglasses when looking through binoculars, you can keep from scratching the lenses by padding the eyepieces with circular corn or bunion plasters. The adhesive will hold them in place.—Amos D. Jordan, Fresno, Cal.

Short Cuts and Tips

FROM PS READERS

Plastic Tubes for Miniature Parts

THOSE clear-plastic tubular containers that bouillon cubes come in provide excellent storage for tiny screws, nuts and other parts used in radio and electrical work. You can glue a shelf in the center of a hinged cigar box, mount the box on a wall and have a convenient cabinet.—*T/Sgt. James R. Brown, Fairfax, Va.*



Dusting Both Sides of Slides

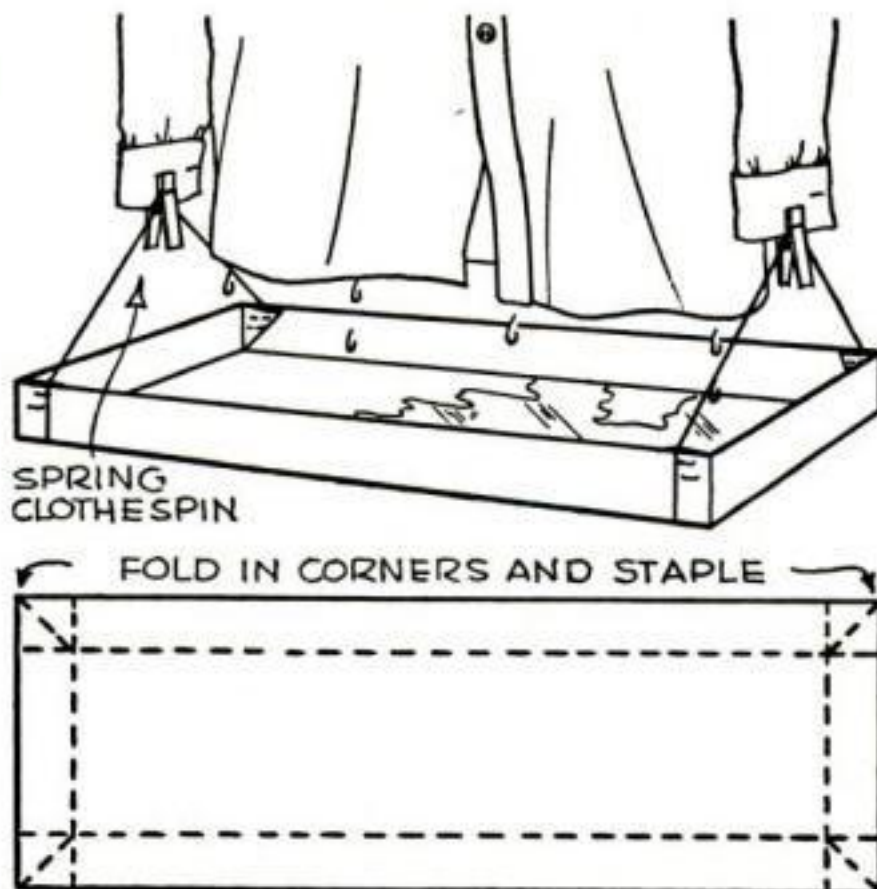
You can remove dust particles from both sides of a projection or stereo slide at the same time with two small soft brushes mounted on a wooden frame. Cut off the handles and screw them to up-rights with the ends just touching.—*Harry Radzinsky, Hollywood, Fla.*

Making Ornamental Hinges



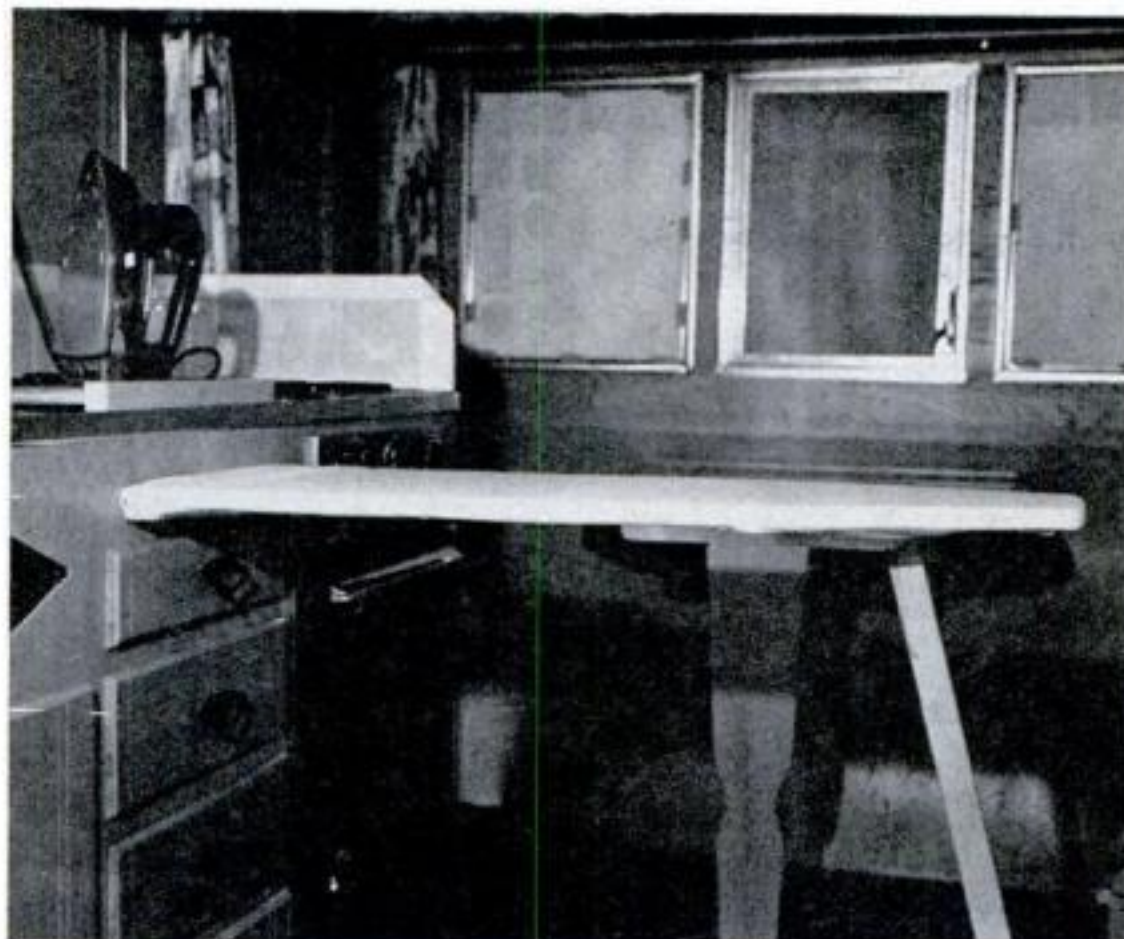
You can make imitation H and L hinges with corner angles tacked beside mortise hinges. Use ornamental nails and paint the two-piece hinges dull black.

▶▶▶ To PREVENT loss of alignment when removing paper laid between surfaces being contact-cemented, I use two overlapping sheets. I hold one, pull out the opposite sheet. When the glued surfaces make contact, the second comes out easily.—*Bob Aguirre, Inglewood, Cal.*



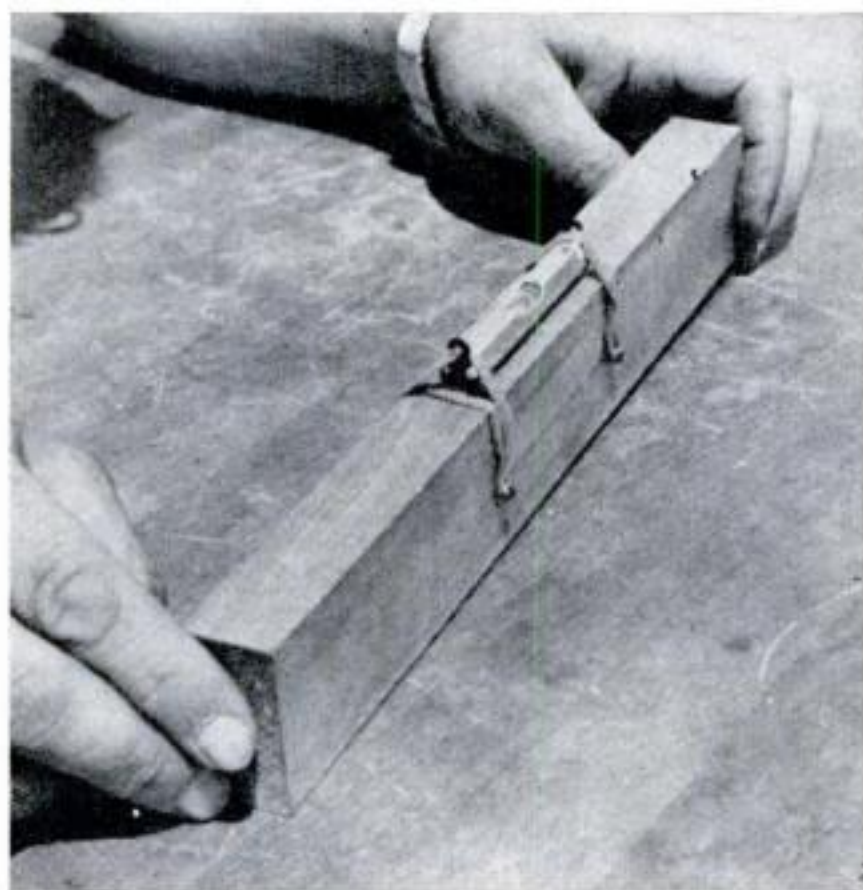
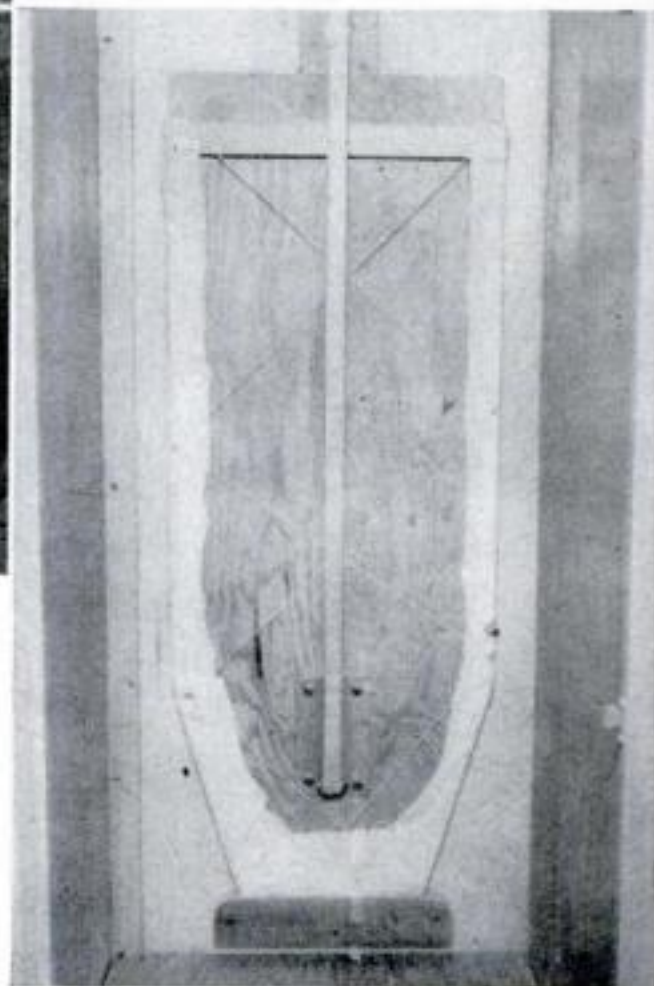
Drain Pan for Drip-Dry Shirts

No ROOM over the tub to hang your drip-dry shirts? You can make a drain pan with a length of kitchen aluminum foil. Tear off a piece about 6" longer than the width of the shirt, fold to make a shallow box and staple the corners. Hold it to the shirt cuffs with clothespins attached to cords stapled to the corners.



Ironing Board for Trailers

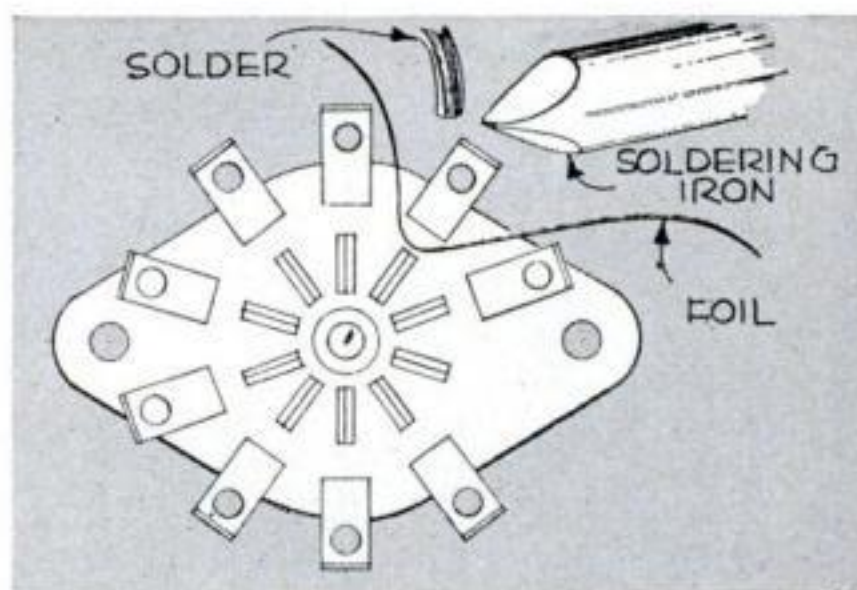
MAKE a trailer ironing board the same size as the breadboard in the kitchen. Then use the breadboard slot to support one end. Hold the other end with a wooden leg, fastened to the board between two pieces of angle. Store the board against the wall with the small end in a wooden pocket.—*Walter J. Luxenburg, San Diego, Cal.*



Line Level for Carpentry Work

A CARPENTER'S level is often too long for work in a confined space. Improvise a short level for this work from a line level and a short length of hardwood. Fasten the line level to the wood with four screws and two rubber bands. For precise work, plane top and bottom truly parallel.—*E. J. Schneider, Doylestown, Pa.*

▶▶▶ You can easily fill an air mattress with excess air from the spare tire. Use a short length of hose with air fittings and keep the spare tire over-inflated by 10-to-20 pounds.—*Ken Murray, Colon, Mich.*

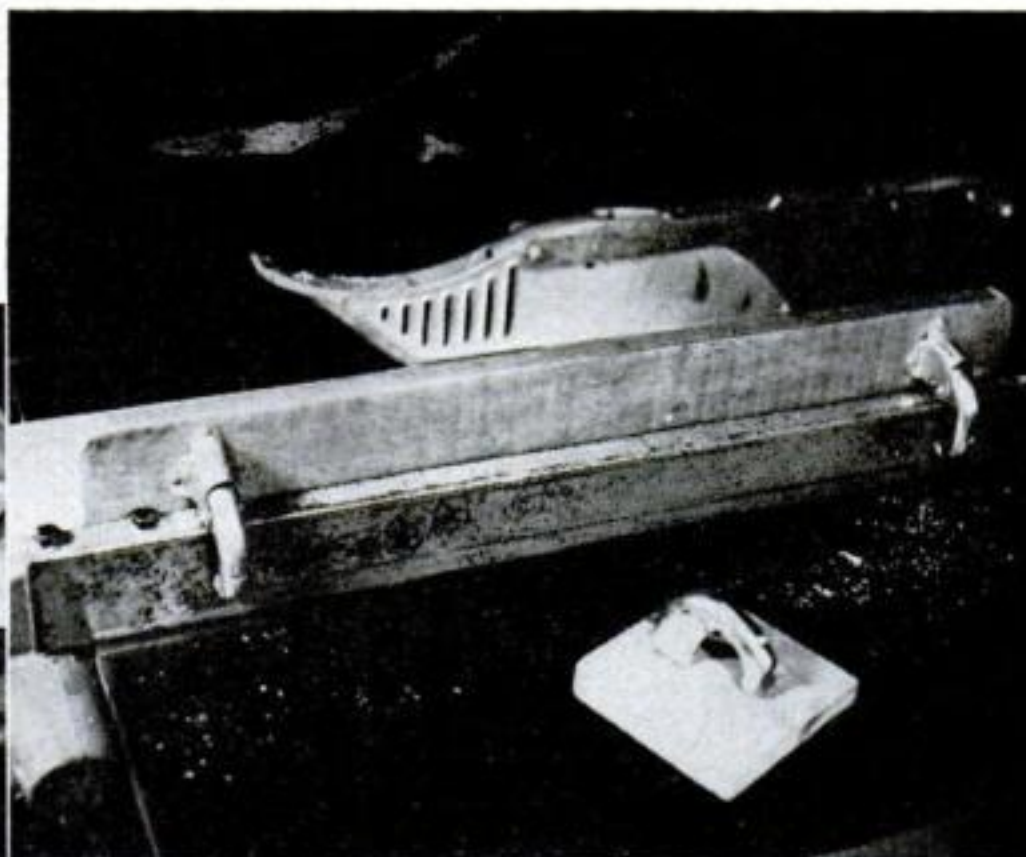
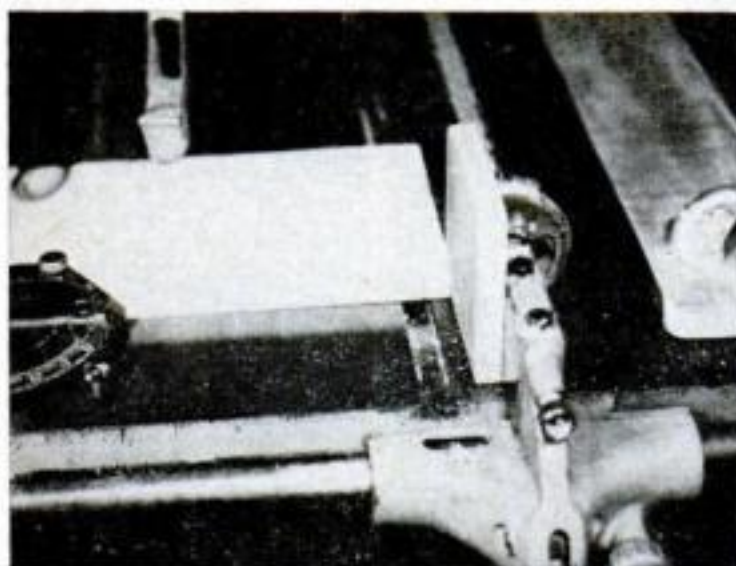


Guard Against Dripping Solder

WHEN soldering a TV in tight places, there is always danger of solder dripping on other joints, running them together or to ground. You can prevent this with a piece of aluminum foil. Insert the foil around the terminal as shown. This is especially helpful when the chassis is turned on its side.—*M. Dubin, Revere, Mass.*

Short Cuts and Tips

FROM PS READERS



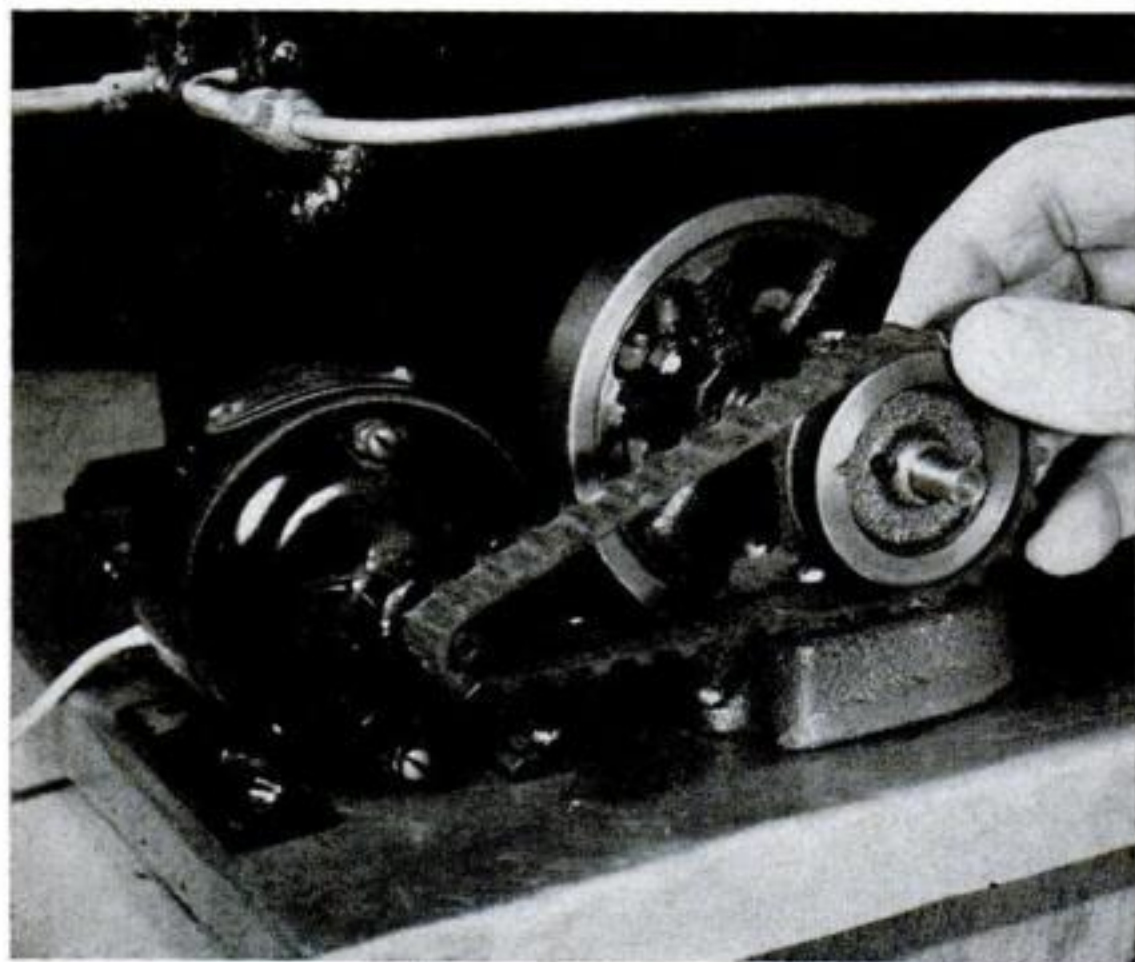
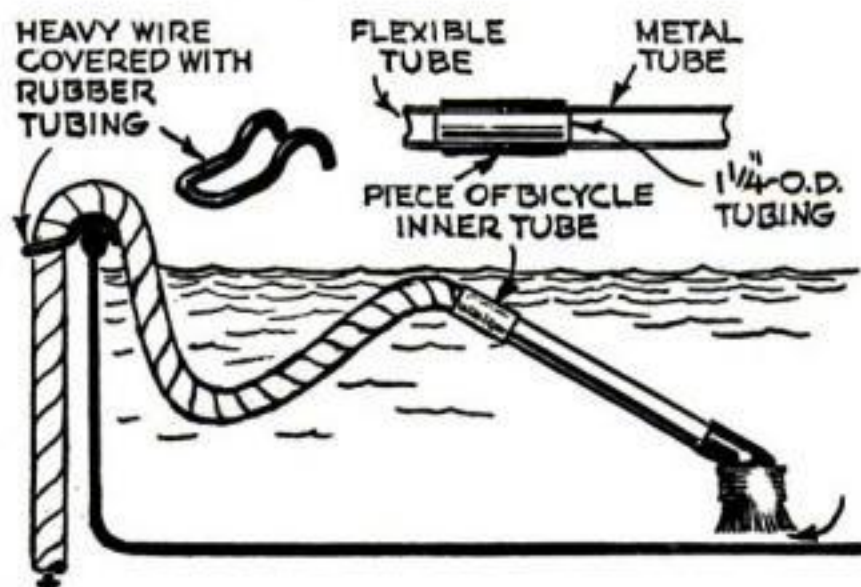
Quick Clamps for Table Saw's Removable Accessories

THE firm grip of a screen-door catch is put to good use on these table-saw accessories. A stop block (left) for gauging cutoffs can be snapped on the saw fence

in a second. Two catches hold an auxiliary wood fence (right) in place for rabbeting or other special jobs.—*Edward R. Roberts, Whittier, Cal.*

Low-Cost Pool Cleaner

AN OLD vacuum-cleaner brush, with an assist from nature, makes short work of removing sediment from our above-ground plastic pool. I attached the brush handle to the hose that came with the pool for siphon draining. Running the brush along the pool bottom loosens the dirt, which is then flushed out with the water. A cleaning drops the pool level only an inch or so.—*Louis Eisen, Phoenix, Ariz.*



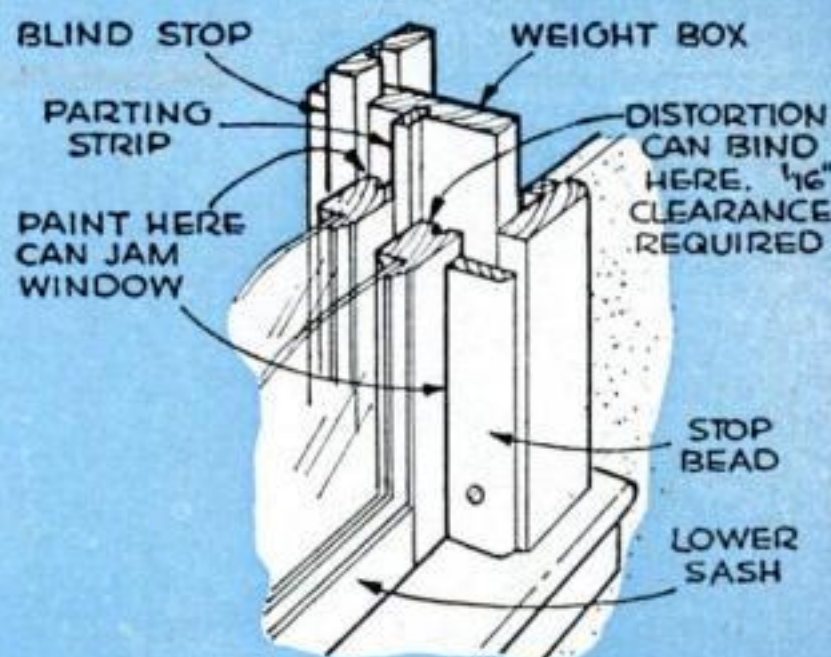
Toy Tread Runs Light Machines

EXPERIMENTAL drives, husky models, and light machinery such as aerating or cutting-oil pumps can be driven with the tread from a toy tractor.

Available in several sizes, the belts are strong enough to transmit respectable power without stretching, yet are so flexible they will run on very small pulleys. Properly aligned, they will stay centered on flat flywheels. A neat wrapping of friction tape on a shaft can serve as the small pulley.

Sticking Windows **fix-it file**

WHY WINDOWS STICK: Common causes are accumulated paint and dirt, warping, wet-weather expansion, and distortion from house settling or improper installation. Most frequently jammed window is type shown at right, which usually can be freed by cleaning and lubricating. Severe distortion may need planing. But plane with care in humid weather; drier days may shrink the sash, causing rattling and leakage.



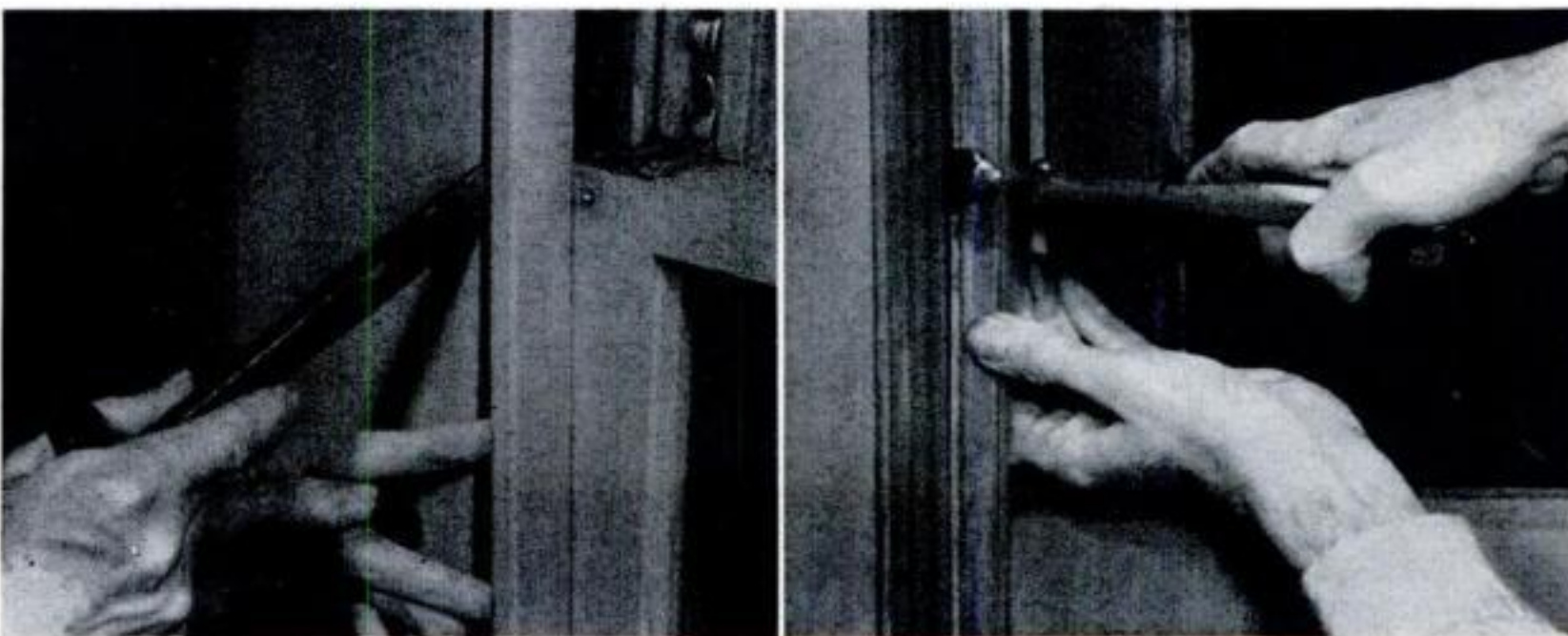
Loosening a sash in place



IF SASH IS JAMMED IN CHANNEL, drive a screwdriver blade between it and the pulley stile to move the sash sideways and break it free. Tap putty-knife blade along stop to

remove accumulated dirt or paint. If sash moves but stays tight, lubricate the channel. Half-and-half mixture of turpentine and melted paraffin makes a good lubricant.

How to remove sash

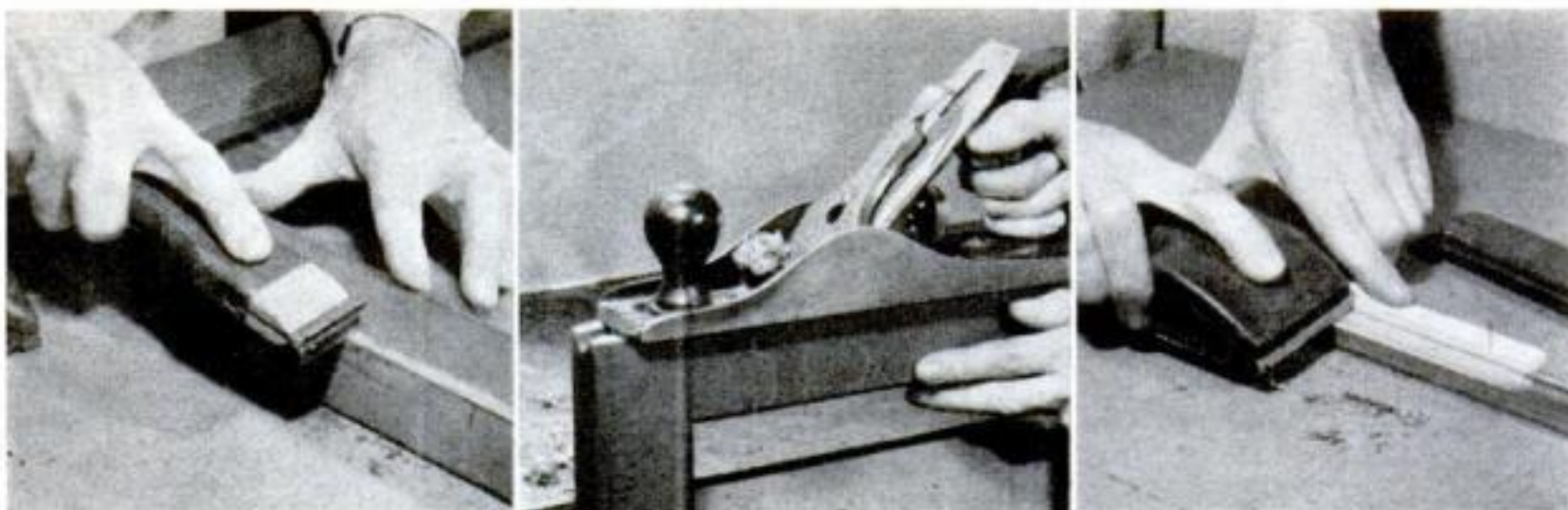


REMOVE STOP BEADS FIRST. If they're nailed, pull nails through back to preserve paint. Swing lower sash out, unhook cord or chain, and lower weight to bottom of box. Then

pull out parting strips. These are usually simply set in their channels, but may be nailed or screwed in place. To remove case-mat sash, first disconnect its hardware.

CONTINUED

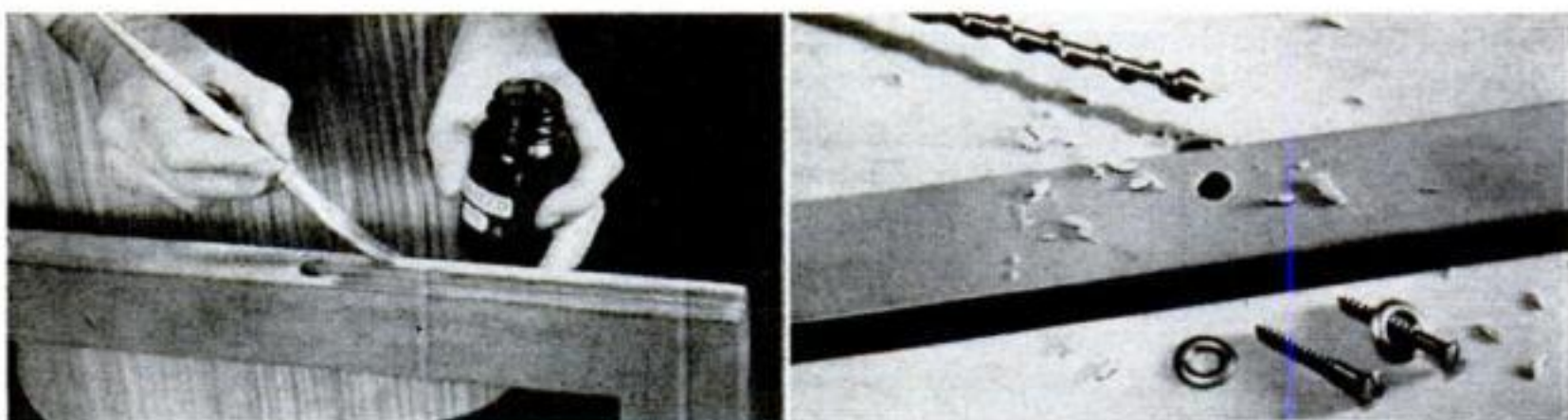
How to treat sash and guides



REMOVE CAKED PAINT AND DIRT from sash by scraping to bare wood or sound paint. Then sand it smooth. If sash has insufficient edge clearance (normal clearance is $1/16''$), plane off some of the wood. Round any sharp

corners with sandpaper. To widen channel in which upper sash moves, scrape or sand the normally exposed sides of the parting strip. Protect the size of the groove-fitting portion with a temporary guide.

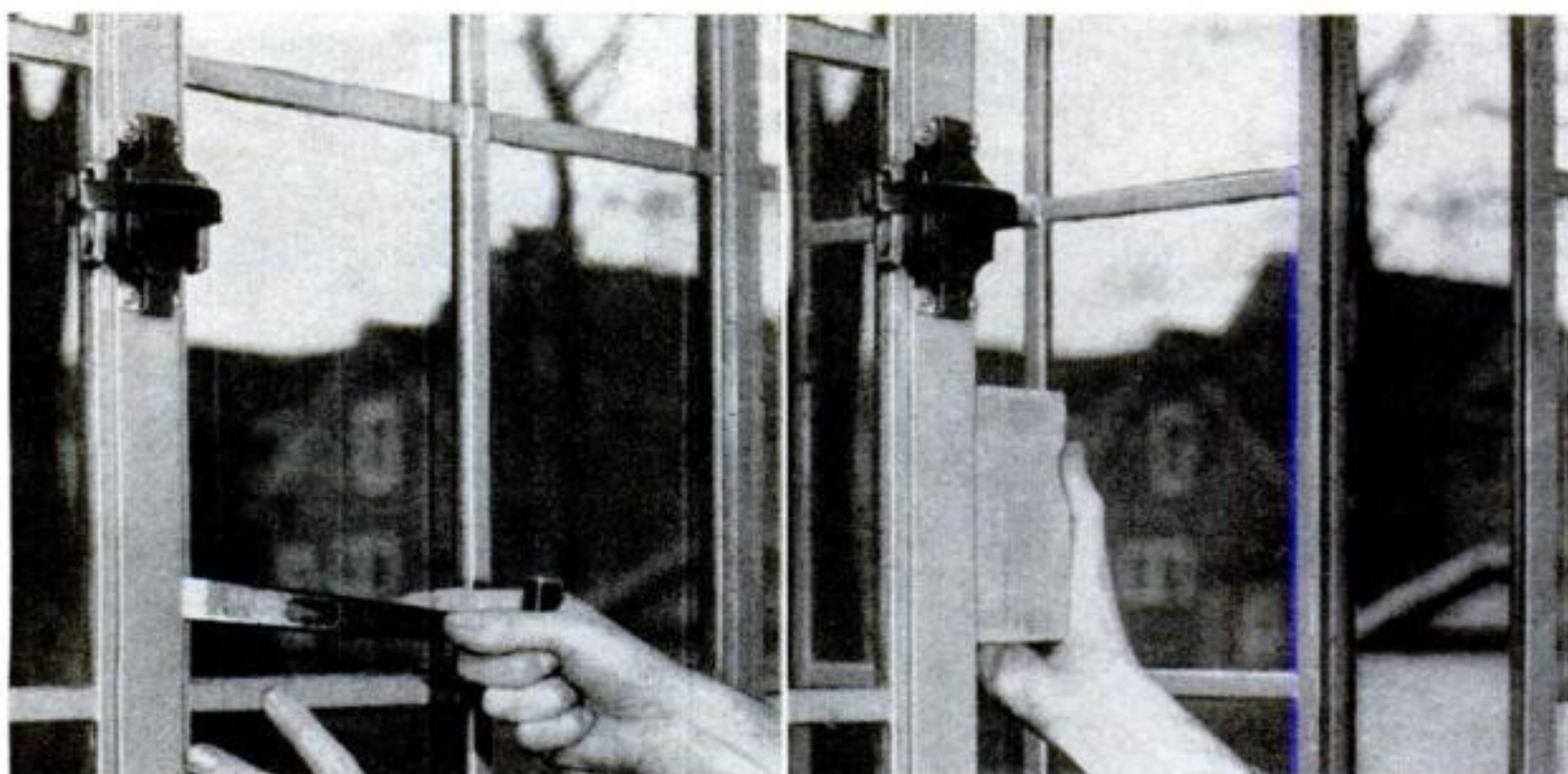
How to prevent future sticking



BEFORE REPLACING SASH, brush linseed oil on unpainted surfaces. Let it penetrate, then remove excess. Oil improves smoothness, seals out moisture. Repaint any window member needing it; common cause of stick-

ing sash is swelling resulting from paint failure. If stop beads were nailed, re-install them with $1\frac{1}{4}'' \times 8$ oval-head screws and matching washers. Oversize ($5/16''$) holes in bead permit shifting to adjust clearance.

What to do about sticking metal casements



TO FREE A SWINGING METAL WINDOW, unlock it and, while easing the operating mechanism, gently pry it open. Penetrating oil between stuck surfaces may help. Remove all interfering dirt, paint and corrosion, then

recoat with paint that dries hard. Let it dry thoroughly before closing window. Distorted hinges or frame demand special tools and a professional serviceman. Clean and lubricate the mechanism for easy opening.

What You Should Know About Wood Putty

MASTER craftsmen used to turn up their noses at wood putty. Just a weak remedy for poor work, they called it. But this is no longer true. Everybody uses it.

Availability in colors has increased its usefulness. Now, a skillful wood patch compliments the craftsman, sometimes even more than a perfect job.

Part of the skill lies in selecting the right wood putty. There are many; every paint or hardware store stocks several. But the dozens of different brands can be sorted into a few types: ready-to-use, water-mixed, and glazier's putty.

Ready-to-use wood putty (Plastic Wood, Famowood, Softwood, etc.) comes in tubes and cans, and is probably the handiest. It hardens quickly, and it's water-resistant.

When you use this wood putty, you're replacing lost wood by gluing more in its place. It consists of tiny particles of real wood—wood flour—mixed with cellulose cement. Its color is a shade of brown, and it has the familiar aroma of lacquer. The color gets lighter as the cement solvent evaporates and the putty hardens.

Unfortunately, solvent evaporates from the stuff left in the can, too. But hardened putty of this type can be revived with the manufacturer's solvent or acetone from the drug store.

Lacquer thinner will soften residue when cleaning up, but its use as a solvent changes the putty's properties. Sometimes this is desirable; lacquer thinner makes the putty dry dense and hard.

When dried, ready-to-use wood putty can be worked like wood. It will hold



READY TO USE

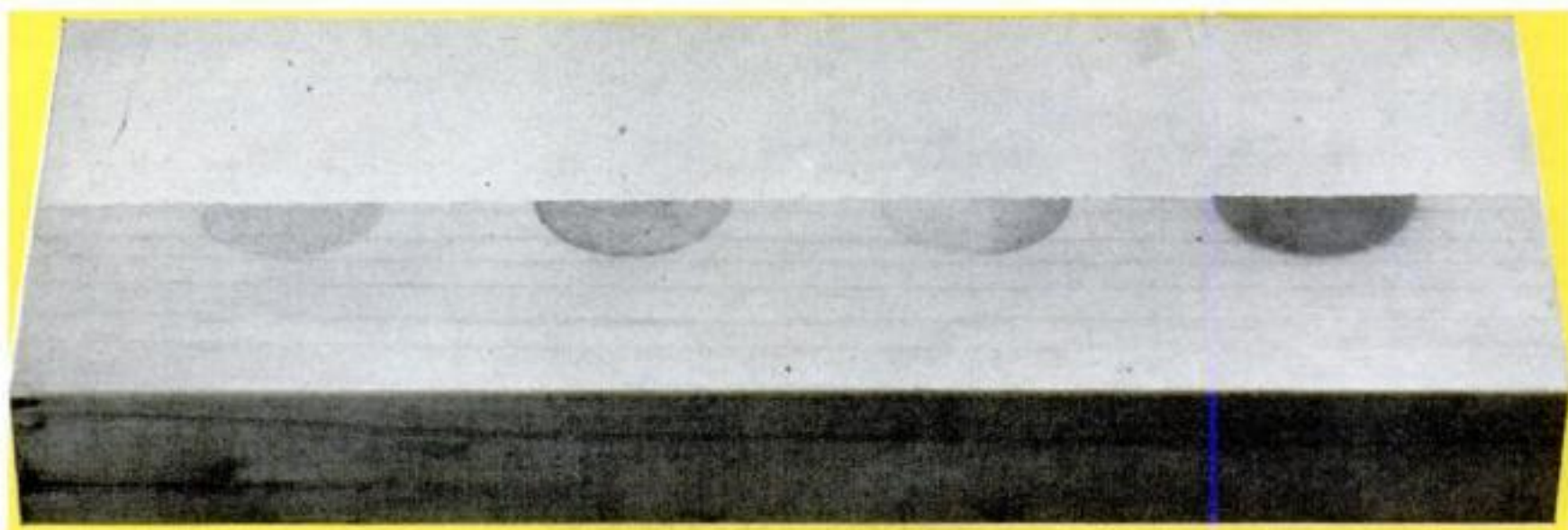


WATER MIX



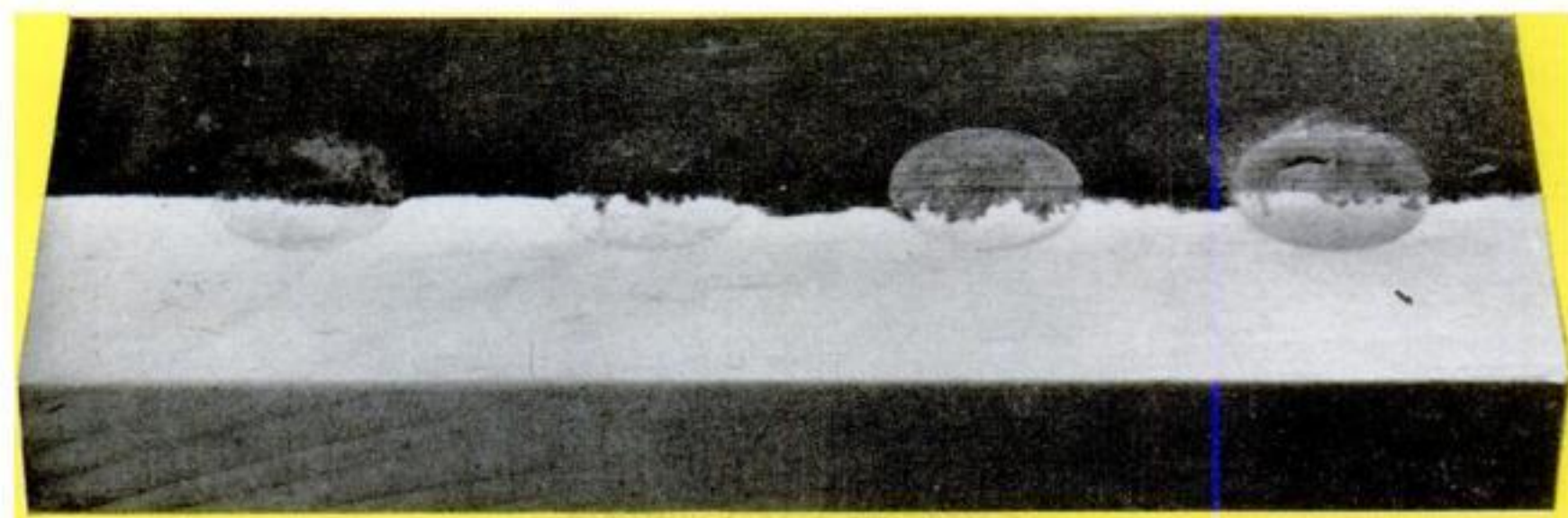
GLAZIER'S PUTTY

What you can do with different kinds of wood putty



SIDE-BY-SIDE-COMPARISON shows how different putties take stain and paint. Representative putties were packed in shallow holes, allowed to dry 24 hours, then sanded

and coated. The block above got two coats of paint, the one below a coat of unwiped alcohol stain. No attempt was made to match the colors to the stained white pine.



READY TO USE

**SAWDUST AND
LACQUER**

**WATER
MIXED**

GLAZIER'S

nails, tacks and screws. It takes paint well, but it's too dense for stain. For this reason, it's offered in several wood colors and shades.

Tubes or cans of this wood paste are handy for other repairs, too. You can use it to fill cracks in plaster, cement, metal, tile, porcelain, enamel, stone and glass. And you can make inlays, molds and plaques with it.

Sawdust and glue is a homemade version of ready-to-use putty. Sometimes it's superior; you can select your own wood flour and your own adhesive.

A teaspoonful of dust sanded from a scrap of the wood you want to match, plus a few drops of glue, makes a small batch. You can mix the concoction with a knife blade on an old can top.

Using clear lacquer instead of glue

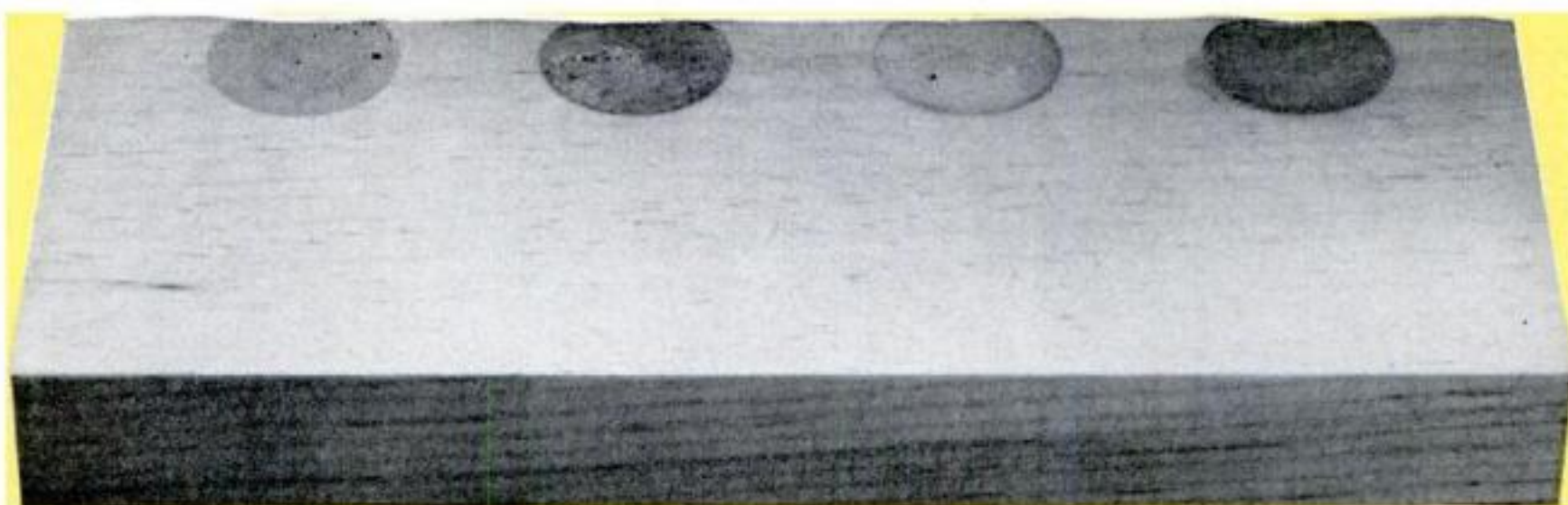
makes a more natural-colored patch. For waterproof paste, use marine glue.

Water-mixed wood putty is a popular choice for big jobs—it's less expensive than the ready-to-use type.

The base is a plaster-of-paris-type white powder, usually containing some wood flour. When mixed with water and allowed to dry, it fuses hard and dense. Sealed boxes or cans of the dry material keep well without deterioration.

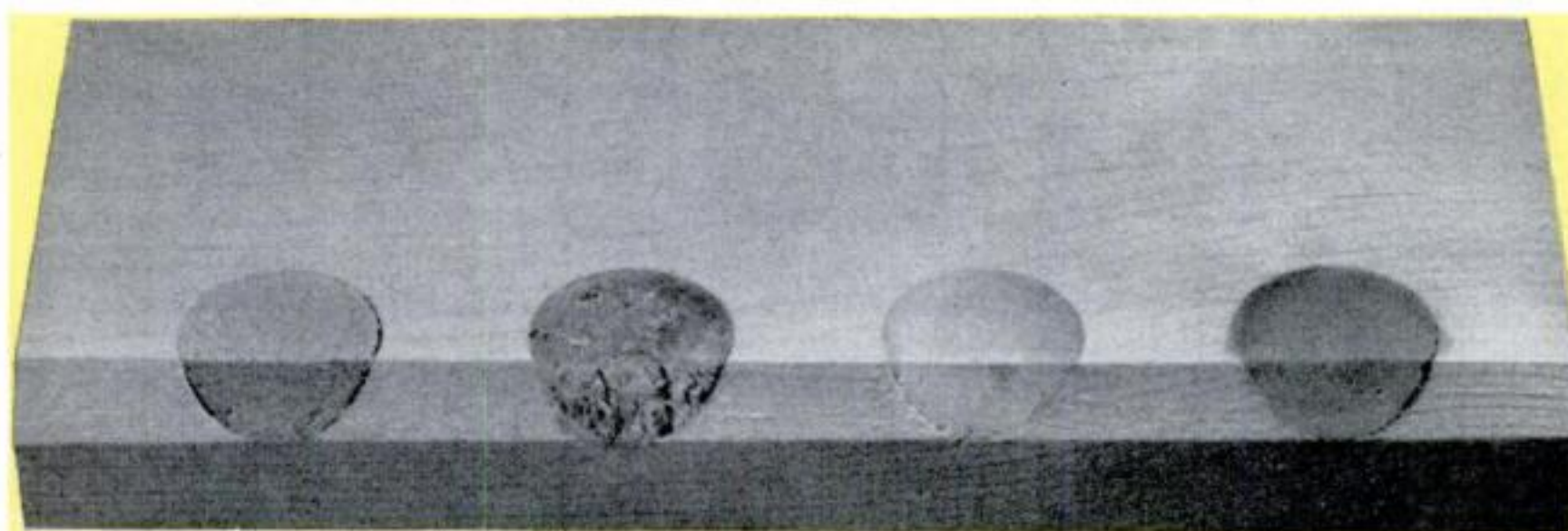
Water-mixed putty can be planed, sawed and sanded, but different brands react differently to stain. Because of varying wood flour or mineral content, some are superabsorbent, others almost stain-proof.

This kind of wood-replacer can be tinted by adding dry-earth colors to either powder or paste. It can be waterproofed



EFFECTS OF SANDING show up in test plugs above. Surface was sanded with block, edge rounded with hand-held paper. Most of the putties wore faster than the wood. Plugs be-

low, all $\frac{1}{4}$ " deep, were planed, also show effects of shrinkage. Sawdust-and-lacquer plug crumbled, its interior still soft. Glazier's-putty plug pulled away from edge of hole.



READY TO USE

**SAWDUST AND
LACQUER**

**WATER
MIXED**

GLAZIER'S

by mixing with varnish instead of water. For special jobs, mixing with milk will retard its setting time.

When you use water-mixed putty it's smart to moisten the wood first with a damp cloth, brush or sponge. This reduces premature drying.

Like ready-to-use wood putty, the water-mixed variety can do other jobs. You can use it to repair cracks in plaster and cement, level floors for linoleum or tile, or make inlays and castings.

Glazier's putty is still first choice with pros for filling holes and cracks in wood surfaces to be painted. It's economical, easy to work, and it stays workable a long time.

It's made of mineral clays—kaolin or calcium carbonates—mixed with linseed oil. But be sure to ask for, and get, gla-

zier's *putty* when that's what you want. It's being replaced for glazing purposes by *glazing compound*. This is an elastic material that's better for holding glass, but not so good for plugging holes.

Glazier's putty keeps fairly well in cans. If it does harden, it can be revived by adding linseed oil. One big advantage is that it can be painted as soon as it's in place. Its principal drawback is high shrinkage—but this can be reduced by daubing the wood with linseed oil first.

Although colored pigments can be added, glazier's putty is not satisfactory for a transparent finish even when color-matched. It's too inclined to shrink and crumble if not protected by paint.

Putty sticks are relatives of the wood-putty family, but not close ones. These wax-base sticks were developed to con-

ceal nails used in prefinished plywood.

They come in a large variety of colors—one panel maker offers nine shades of birch alone. Because of this color variety, they can be easily matched to almost any wood.

In use, the putty stick is merely rubbed across the nail hole or crack until the cavity is filled. The excess is wiped off with a cloth. This makes an easy way

to plug small holes, the only use for this variety of putty.

Even this is limited to finished wood. The wax base rejects stains or paints.

When skill and effort pay off in an invisible patch, resist the temptation to be proud of it. After all, there's not much point in making a patch invisible, and then pointing it out.

Or is there?

Wood-Putty Tricks

BE SURE there's no air under a small wood-putty plug. The point of a knife blade, or a nail point ground flat, makes a ram for packing small holes. Hand-shaping a wad of filler into a long, pointed cylinder helps in filling small holes from the bottom up.

Fill deep spaces with successive thin layers. Let each one dry thoroughly. All wood putties shrink somewhat; thin layers minimize shrinkage, prevent warping in big patches.

When you use wood putty to repair decayed or damaged wood, clean out the cavity first. Wood putty won't stick in a hole lined with dust or dirt.

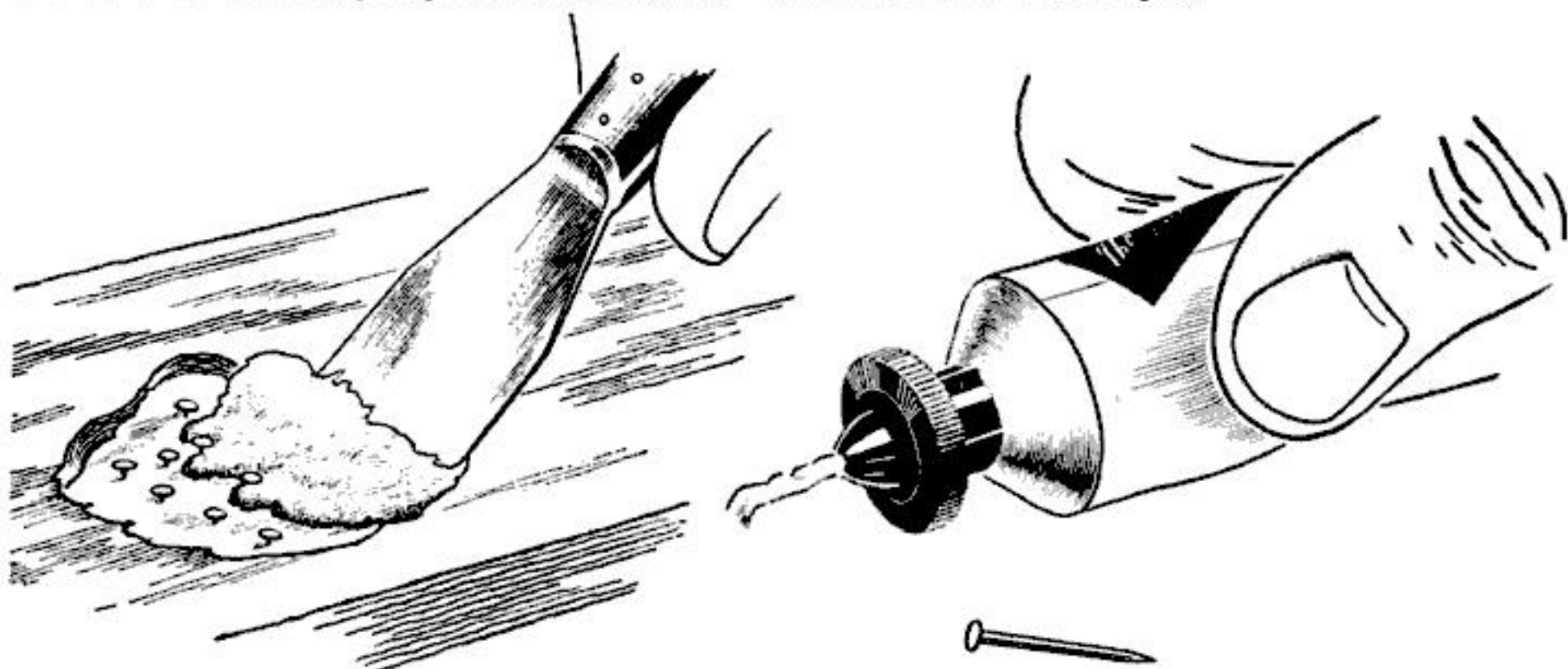
Keep packing putty into a hole until it springs back, indicating an excess. Then when it's partially hardened, shave off the surplus with a putty knife or chisel.

This will leave the surface high enough to counter shrinkage, yet save a lot of sanding.

When sanding putty patches, use a firm block to keep the abrasive flat. Otherwise you'll get a mound or a hollow. Putty and wood don't have the same hardness; one wears faster than the other.

Use caution when filling holes in painted surfaces with ready-to-use putty. Solvent in its cellulose cement may soften surrounding paint.

Experiment patiently when matching wood and putty under a transparent finish. The several shades of ready-to-use putty make the job easier, but far from foolproof. Experiment with different shades, using scrap wood and finish identical to the project's. Then use the same shade on the actual job.



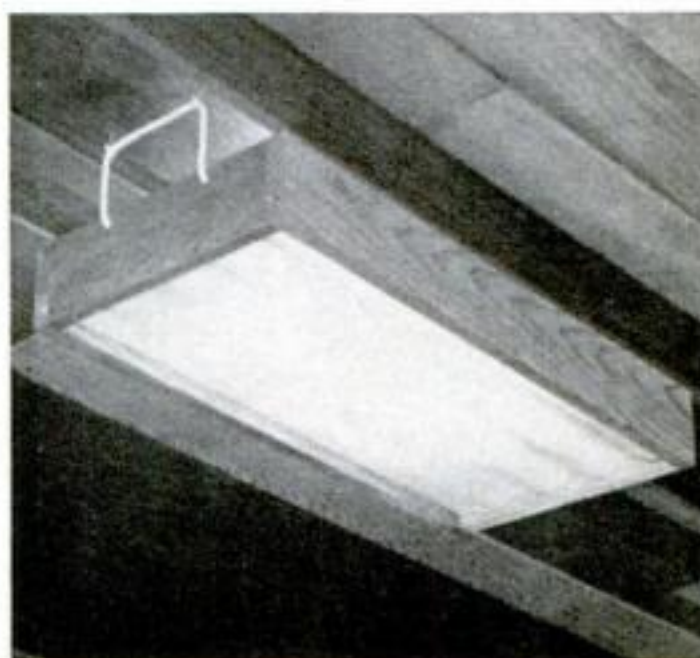
UNDERCUT EDGES, STUDDING WITH NAILS, give putty a better grip in large cavities. Fill such holes with several thin layers for best results.

HOLE IN THE HEAD of pointed cap on putty tube makes hypodermic needle for filling nail holes. Use nail to plug hole when tube's not in use.



Short Cuts and Tips

FROM PS READERS



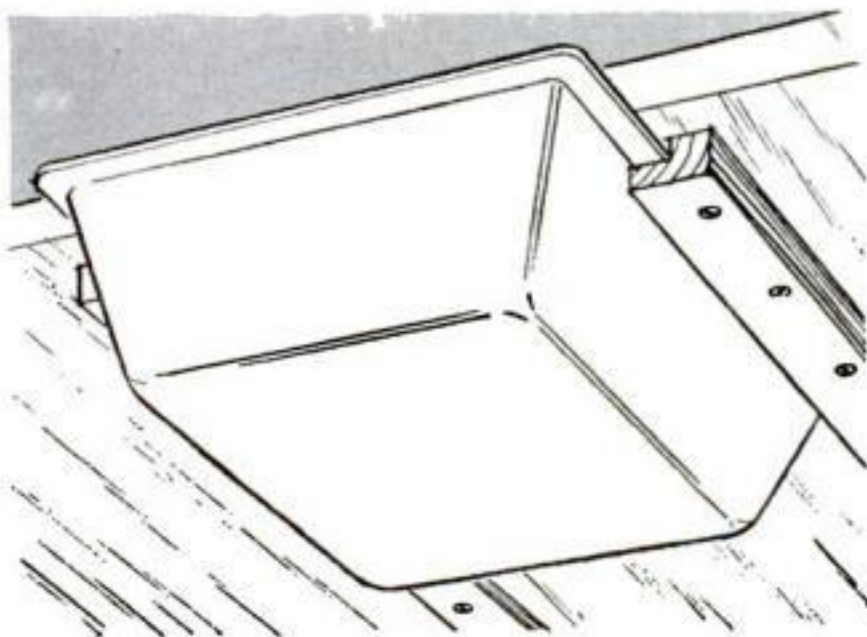
Easy-to-Build Diffuser for Your Overhead Lights

A SIMPLE box frame with a fiberglass bottom will turn a harsh overhead light into a soft, warm glow. Saw a kerf $\frac{1}{8}$ " deep, $\frac{1}{4}$ " from the edge of the 1"-by-4" sidepieces to fit the fiberglass sheet. If

you use corrugated fiberglass and have no router to make a similar cut in the ends, butt them and hold with $\frac{1}{4}$ "-by- $\frac{1}{4}$ " strips. Hang with clothesline and cup hooks.—*Paul Corey, Sonoma, Cal.*

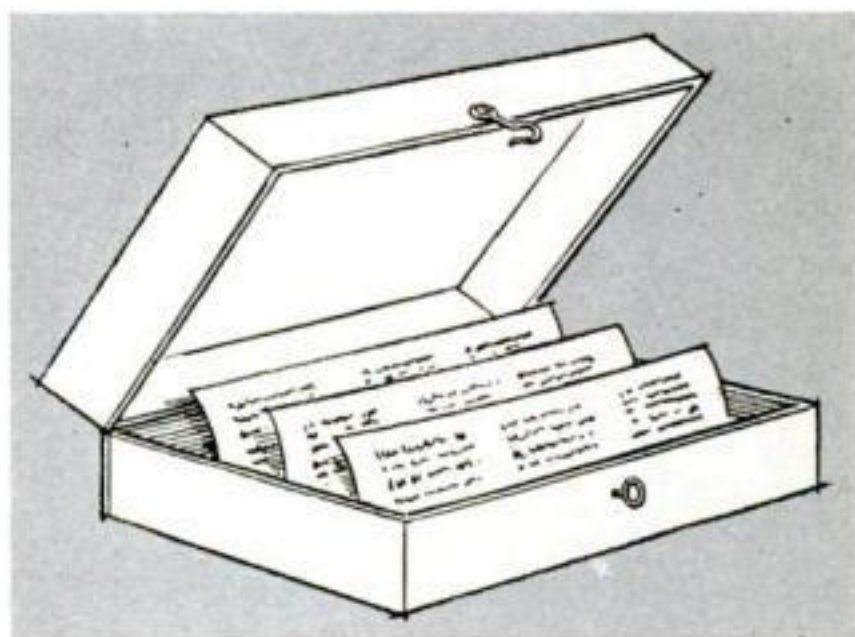
▶▶▶WHEN a tip comes off a shoelace, you can make a new one by wrapping a piece of cellulose tape around the end. This is especially useful for children's shoes.—*Lillian Koslover, Watertown, Mass.*

▶▶▶I FINISHED my level driveway with a dry mixture of cement and gravel, using a bag of cement to a ton of rock. It's not concrete but is a firm, solid roadway.—*Robert A. Brown, Shelbyville, Tenn.*



Making Workbench Drawers

IF YOU can salvage, from an old refrigerator, some of the bins designed for storing vegetables, you'll have handy catchall drawers for a work bench. The rounded corners make it easy to pick up small objects. Mount the metal drawers under the bench top on rabbeted cleats.—*Donald E. Henry, Oquawka, Ill.*



Deep Cigar-Box Container

Two cigar boxes and a little glue make a handy container for household odds and ends. Bottom is a box with lid removed; top is matching box turned upside down, hinged by gluing its abbreviated lid to the back of the bottom box. Add a hook and eye at front, paint or finish as desired.—*Arthur Moses, Springfield, Mass.*

Your invitation to outboard living

9 Great New Models — 6 to 80 hp. — New Single- Lever Remote Controls!

Hanker for the scent of pine on a mountain lake or the salty tang of an ocean breeze? Mercury gives you a new definition of outboard living. Fishing, skiing or cruising, you'll command the world's most advanced outboards — *all-new* from controls to props! Your Mercury dealer is ready to open the doors to adventure for you *today!*

- **Powerful Sixes** — 80 hp Merc 800, 70 hp Merc 700, 60 hp Merc 600. World's most powerful family outboards.
- **Fabulous Fours** — 45 hp Merc 400, 35 hp Merc 300. Smoothness and fuel economy unmatched by "big-bore" twins.
- **Trim Twins** — 22 hp Merc 200, 15 hp Merc 150, 10 hp Merc 100, with automatic transmission. 6 hp Merc 60, Push-Button Drive!

1960



MERCURY

World's No. 1 Outboard!



NEW SINGLE-LEVEL REMOTE CONTROL FOR TWINS, FOURS AND SIXES! One hand commands Mercury power, with the world's fastest, safest, easiest-to-operate remote controls — combine throttle, forward, neutral and reverse. Six cylinder model controls incorporate starting as well!

NEW FIXED JET CARBURETORS ON EIGHT MODELS! Eliminate troublesome high-speed needle valves, guarantee efficient carburetion throughout the speed range; no adjustments except idle, as on your car!

NEW PROP-JET EXHAUST! On 80 and 70 hp models and *Glide-Angle* Twins, submerges exhaust noise and fumes under water, far aft of boat.

NEW IN-LINE ENGINES! Modern small-bore, short-stroke design that delivers the most horsepower per pound, per cubic inch, per dollar, *and* more miles per gallon!

NEW COLOR SCHEME, CLASSIC STYLING! Clean and compact, Mercury's prestige styling is the most distinctive and functional of any outboard line! Cowls are aluminum and stainless steel for longer life, lasting beauty.



**Presenting The
Magnificent New**
merc 80

80 hp Six-in-Line . . . new leader of the world record line!

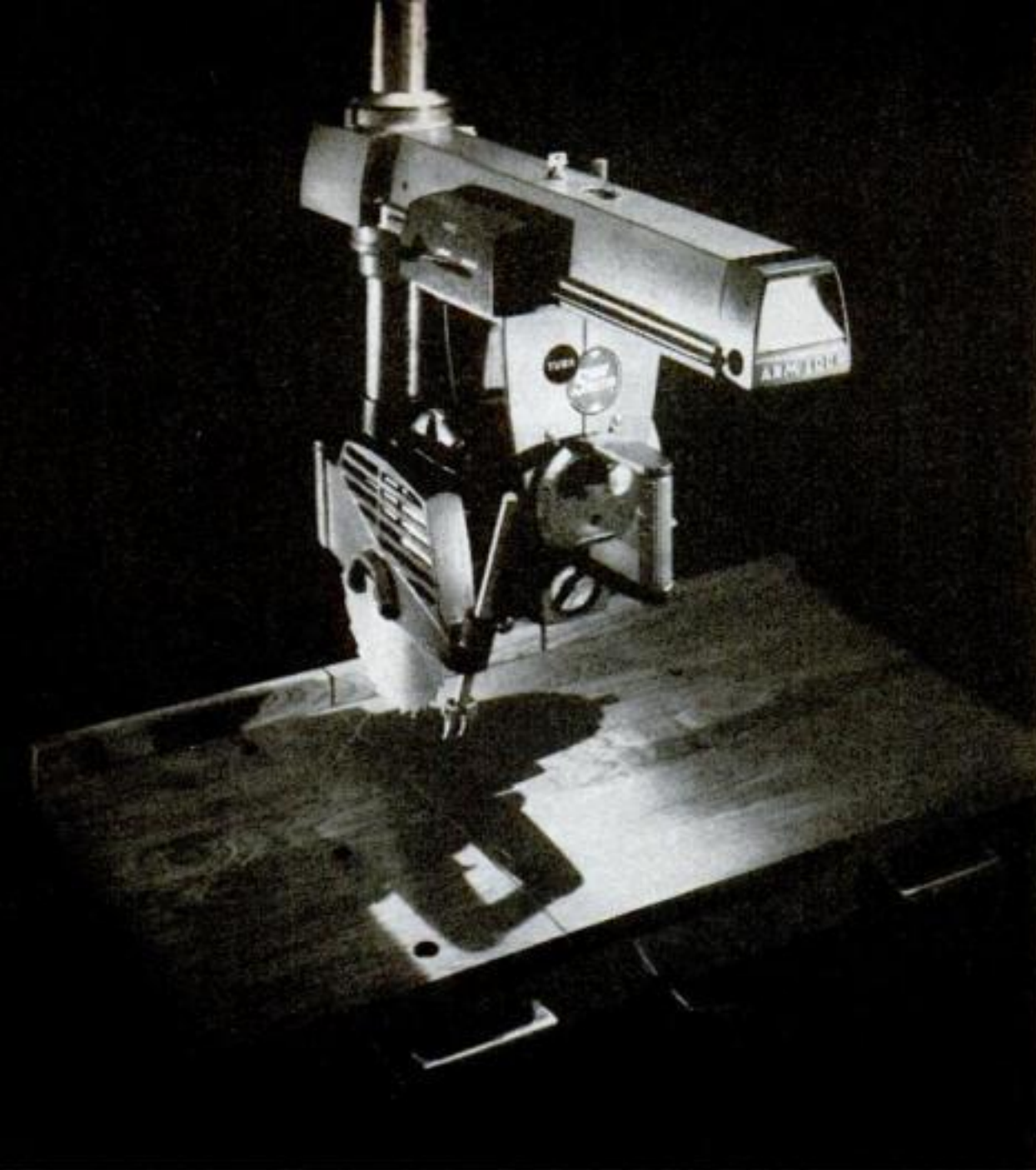
Write for free catalog.
Address Dept. PS-10

Kiekhaefer Corporation
Fond du Lac, Wisconsin



© 1959

Copyrighted material



.....

Regular readers of POPULAR SCIENCE know R. J. De Cristoforo as the author of many well-grounded and informative articles dealing with home-workshop activities. For an outstanding example, see his "Thickness Sander for Home Shops" on page 164 of this issue.

Some will also remember Cris as the author of "Power Tool Woodworking for Everyone," a best-seller that deals largely with the use of the Shopsmith. His long experience with this multipurpose tool made Cris a logical choice to shop-test the newest member of the "Smith" family, the Saw Smith, which goes on the market this month.

—The Editors.

.....

Shop-Use Report on the New Saw Smith

By R. J. De Cristoforo

"GIVE it the kind of rough treatment any display machine gets in a hardware store." Those were my instructions when the makers of Shopsmith shipped me a pilot model of their new radial-arm saw—the Saw Smith—for testing.

The tool was husky, handsome, modern. It had big, color-coded controls and locks that were smooth and positive in action.

I'd been told to look for unusual fea-

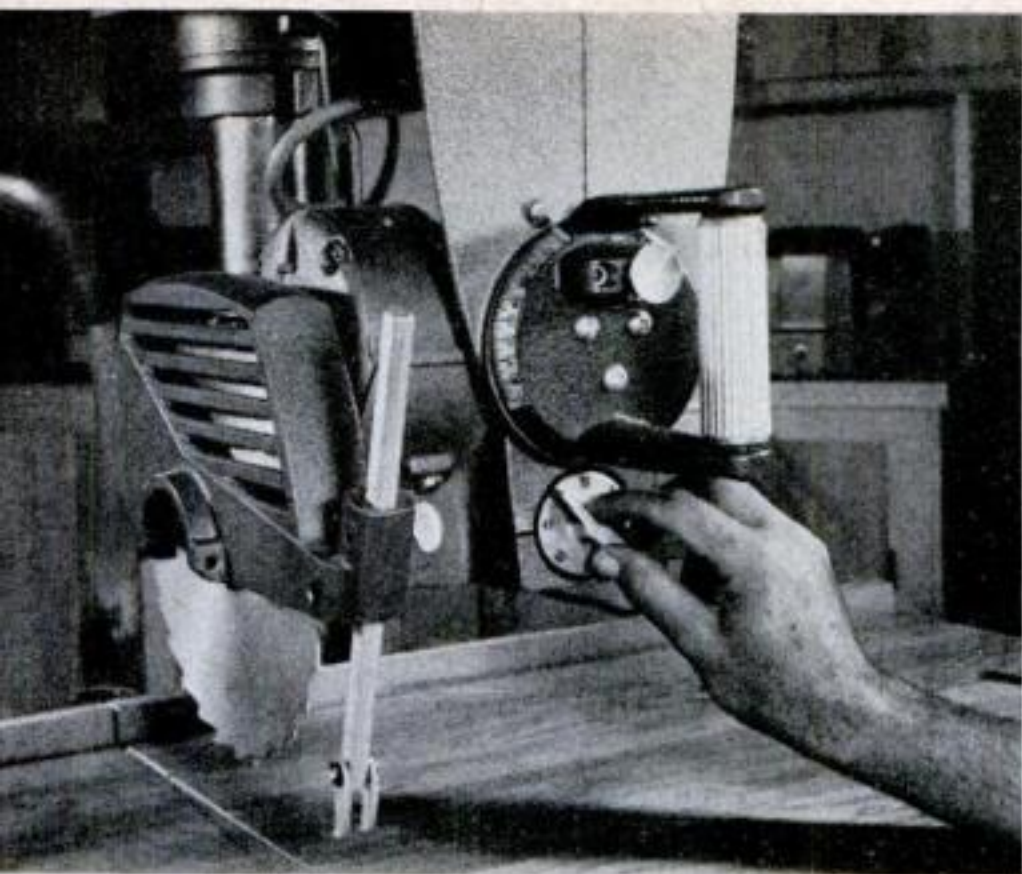
tures. One was a mechanical key switch. I liked that, for I've experienced trouble with electrical key switches. Saw Smith's key simply activates a plunger that lets you punch *on* and *off* buttons. The former is recessed to prevent accidental starting, the latter raised so you can slap it down quickly in an emergency.

That was fine. But how long would the blade spin after the current was cut? I made a stop watch check. With the tool set for varying arbor speeds it took from

Quick Facts About the New Saw Smith

Price	\$239
Table size	1" x 18" x 36"
Blade size	9"
Depth of cut	3"
Max. crosscut (1" stock)	20 ⁵ / ₈ "
Rips to center of	54" panel
Motor rating	1 hp.—develops 2
Column diameter	3"

Speed	1,700-6,300 r.p.m.
Spindles	2 (one threaded, one smooth w/tapered flat)
Max. blade above table	6 ¹ / ₂ "
Indexes (on arm)	90-45-0-45-90
(motor swivel)	0-90-180-270
(motor tilt)	90-45-0-45-90



TURN A KNOB and you get a speed that suits the job—sawing, sanding, drilling, shaping, routing. You can set it way down to saw tough woods, or set it high for very smooth cuts.

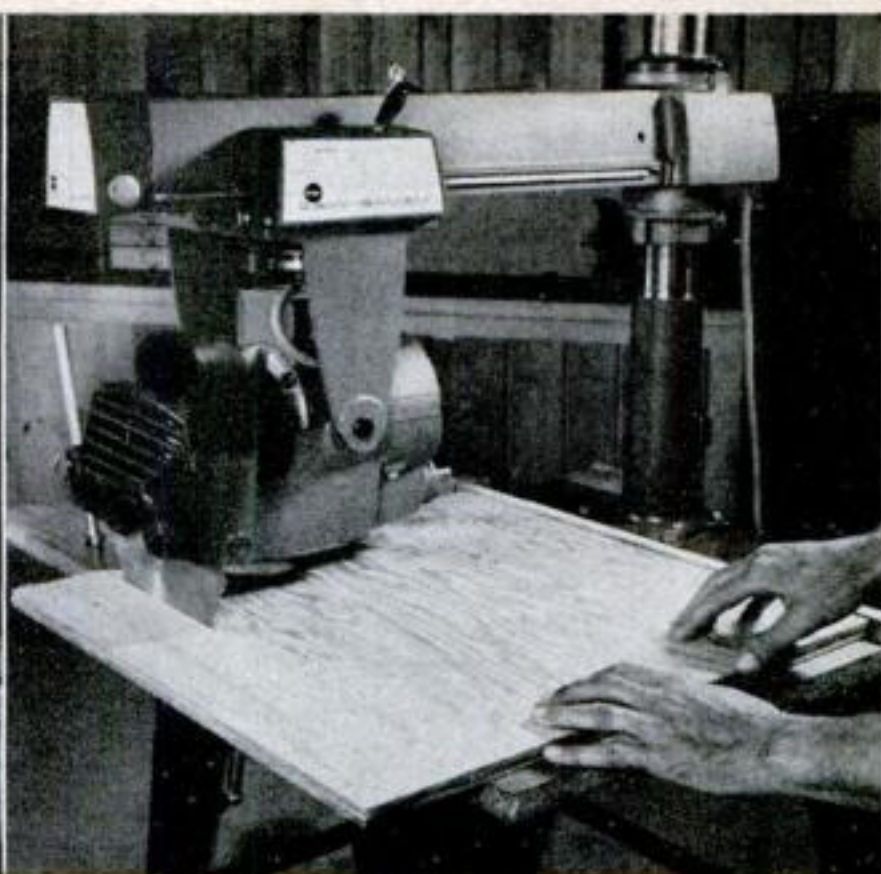
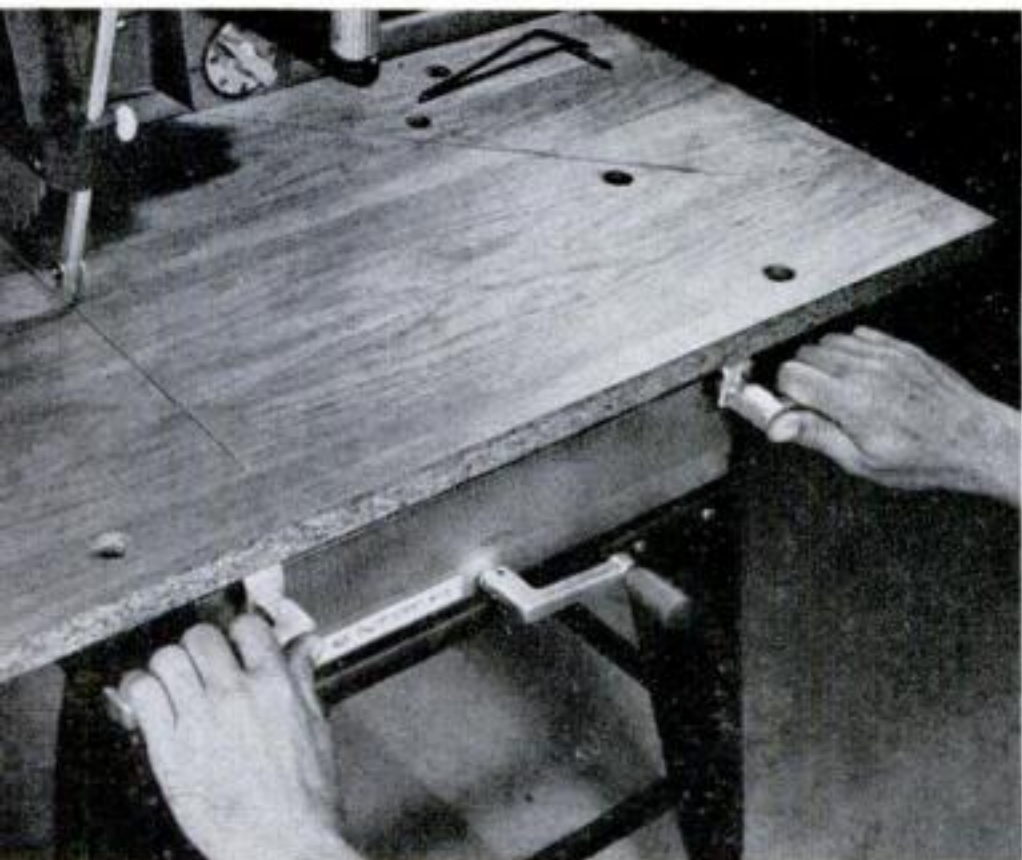
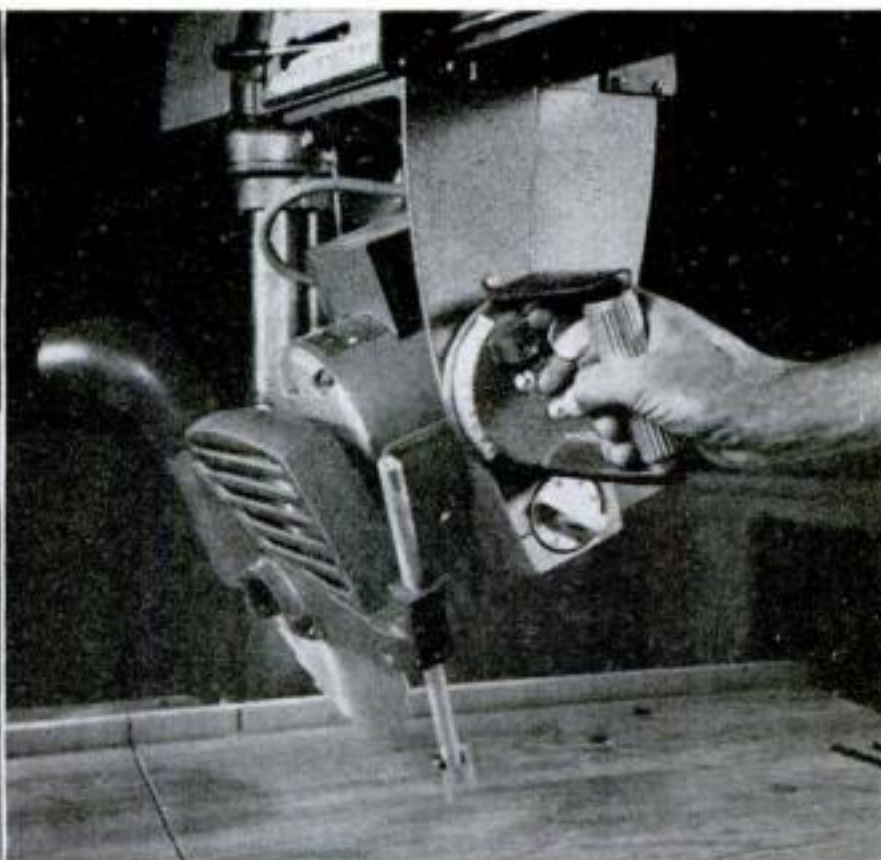


TABLE SLIDES forward or back, to move the work exactly where you want it in relation to the tool. Adjusted for this rip cut, it offers maximum support right next to the saw blade.



BETWEEN STOP-CONTROLLED LIMITS, the table glides smoothly on nylon bearings. Once you've positioned it for the work, a pair of locking levers on the base hold it rigidly in place.



SAW CAN BE ADJUSTED and locked at the desired angle with one hand. Two fingers pull out the index plunger, and a slight twist of the handle locks or releases the assembly.

two to five seconds from the time you released the saw handle to strike the button until the blade came to a full stop.

Seven speed settings. I've just mentioned variable speed. This is an outstanding "first" in radial-arm saw design. To get it, the blade is not mounted on the motor shaft. Instead, there's a belt-connected saw spindle with an arbor at each end, set right below the motor. Split pulleys controlled by a cam vary

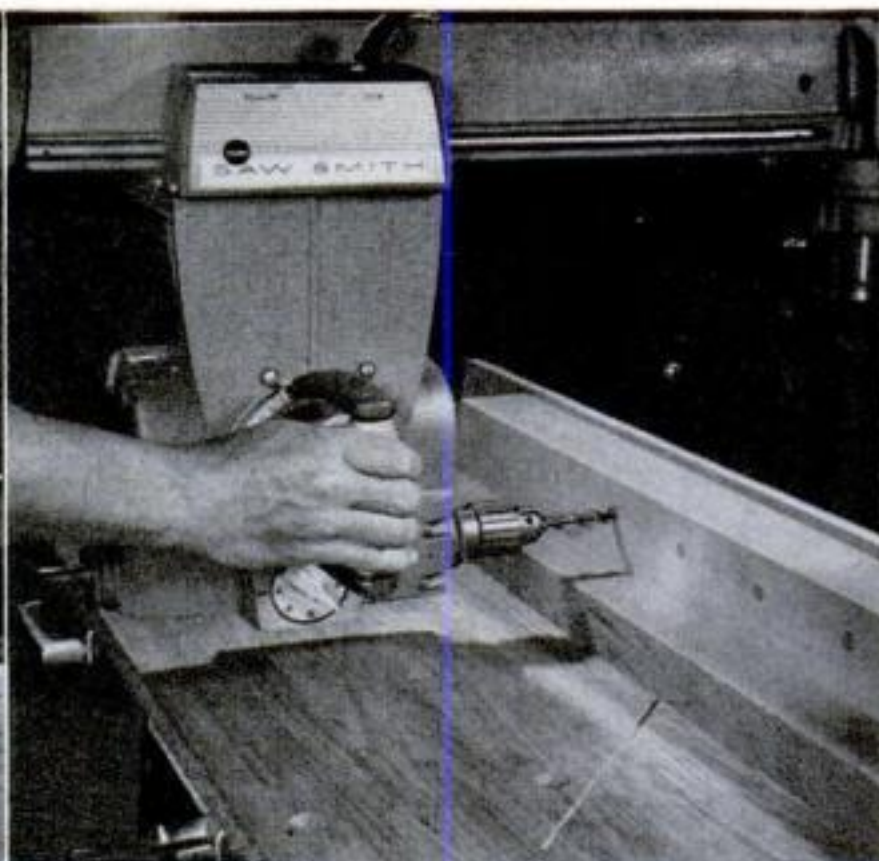
the spindle speed. You turn the cam with a dial that offers seven click-stop settings ranging from 1,700 to 6,300 r.p.m. Working at 1,700, I had no trouble dicing a 6' length of six-by-six with double passes—both rip and crosscut.

The independent, double-arbores spindle greatly increases the tool's usefulness. It allows a full 3" depth of cut with the 9" blade. Too, by switching from one arbor to the other you get equally good

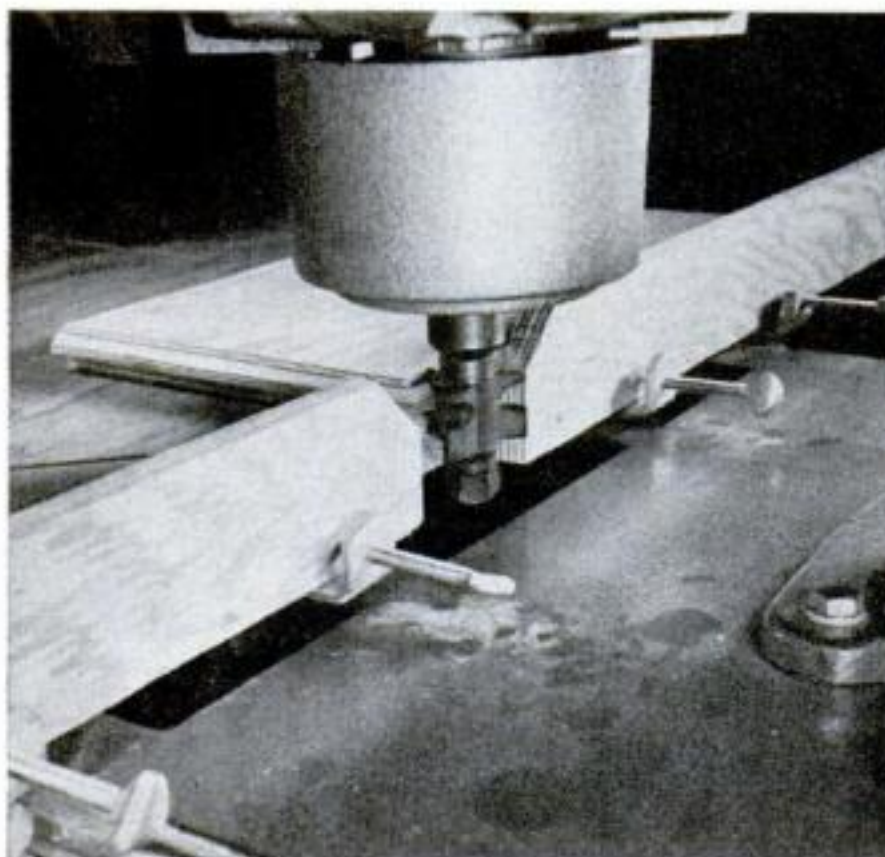
CONTINUED



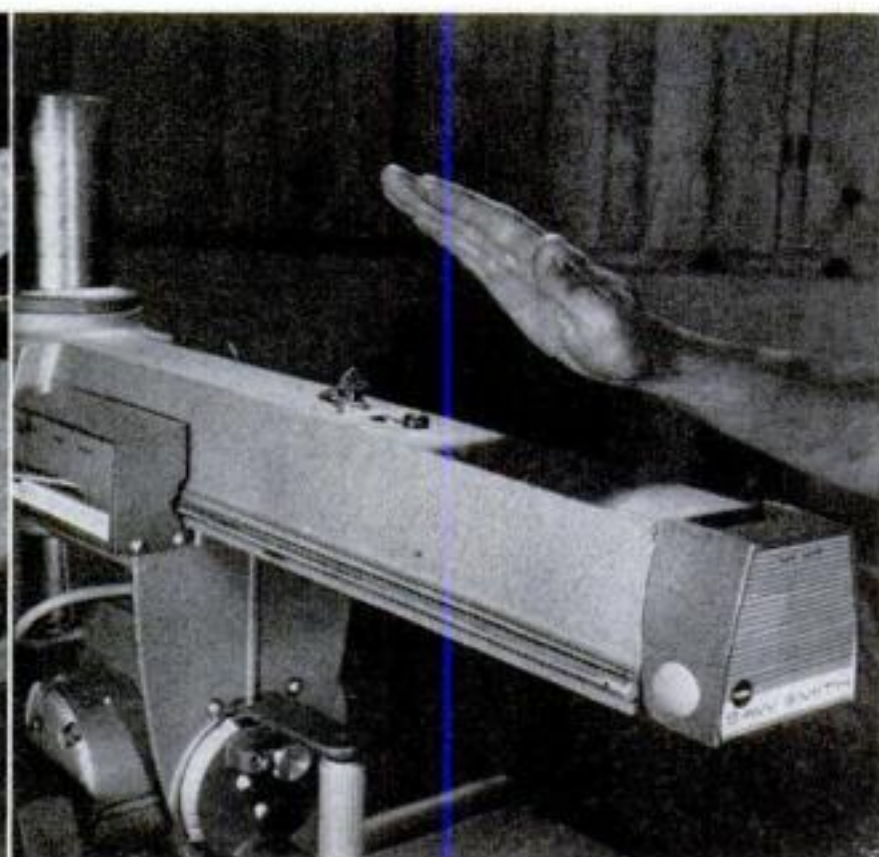
UNIQUE FEATURE is a right- as well as a left-hand arbor. Right-hand blade mounting offers more support for left-hand miter cuts as shown above. It also permits extra-wide ripping.



LOW SPEED, plus its sliding table, makes the Saw Smith a fine horizontal drilling machine. For such operation, the extra-high fence shown takes the place of the cutting guide.



FOUR LOCKING LUGS at the rear of the saw table let you apply two-piece fences and jigs. With double arbors you can rotate cutting tools either way, for feed from the left or the right.



KEY SWITCH controls on and off buttons, the latter projecting above the casting. A slap stops the machine within five seconds—with one hand coming from normal work position.

table support for right- and left-hand miter cuts. This isn't true of single-arbor radial-arm saws, which may not provide enough bearing area when used for left-hand miters.

For work other than sawing, the right-hand arbor let me run any cutting tool in the conventional direction—and at the right speed, thanks to the speed changer. This meant that any tool I had in the shop designed to fit a standard $\frac{5}{8}$ " arbor

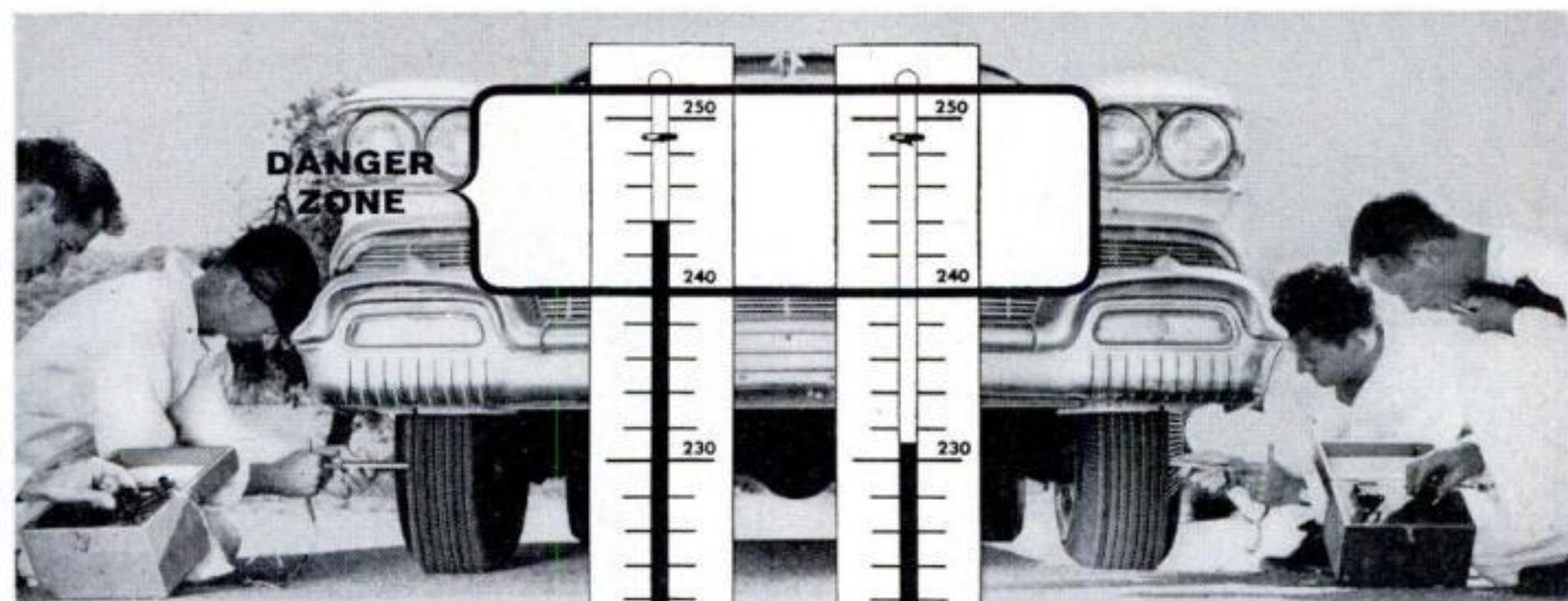
could be used with this new Saw Smith.

On the fence. A feature that left me betwixt and between was the saw's sliding table. When making a maximum crosscut with other radial-arm jobs, here's the routine: First, in a fixed table you set the fence between segments that are far enough forward to let it steady the work just ahead of the blade. Then you draw the saw toward you as far as it will go,

[Continued on page 246]

Road Tests Prove: **RADICALLY NEW**  **LOW PROFILE TIRES**

BEAT DEADLY TIRE HEAT



SEE HOW RAPIDLY ORDINARY TIRES GET HOT — WHILE LOW PROFILE TIRES RUN COOL!

Ordinary tire (at left) and new Low Profile tire (at right) get temperatures taken after running only 29 miles at turnpike speeds.

Constant flexing has already pushed ordinary tire's temperature into the tire-destroying *heat danger zone*. But new Low Profile Safety-Shape tire is well below the danger zone. Even running hour after hour, U. S. Royal's Low Profile tire stays cool!



NEW LOWER, WIDER TIRES RUN COOLER, ARE SAFER, GIVE UP TO 35% MORE MILEAGE, SAVE GAS — YET COST NO MORE!

Why buy hot-running tires... when now, at down-to-earth prices, you can enjoy the extra safety of tires that beat deadly tire heat!

The above diagram shows Low Profile tires are lower and wider than ordinary tires. Built closer to actual working proportions on the road. So they don't flex as much. Don't strain as hard. Run far cooler than ordinary tires!

They're safer against tire

failure at high speed. Safer on turns. Safer against skids. Safer in emergency stops.

They give longer service. Roll easier—save gas.

U. S. Royal's new Low Profile Safety-Shape tire is now yours at popular prices, at your U. S. Royal Dealer's.

- **MILEAGE**
25% to 35% more mileage
- **HIGH SPEED ENDURANCE**
3 times better
- **TURNPIKE GAS ECONOMY**
6 to 12 extra miles per tankful
- **TURNING EFFORT**
20% more stability on curves
- **SKID RESISTANCE AND TRACTION**—raised 5 to 10%

U.S. ROYAL TIRES



United States Rubber

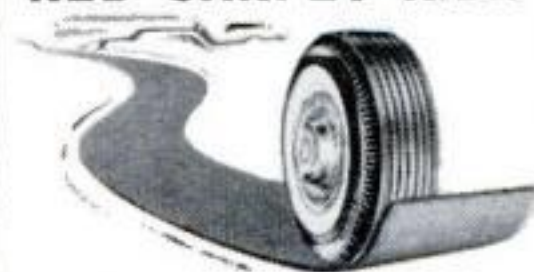
Rockefeller Center, New York 20, N. Y.

In Canada: Dominion Rubber Co., Ltd.

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, New York

Effective Immediately in U. S. Royal Tires
A REVOLUTIONARY DISCOVERY IN RUBBER
NO-SHOCK RUBBER

GIVES YOU THE **LUXURIOUS**
RED CARPET RIDE

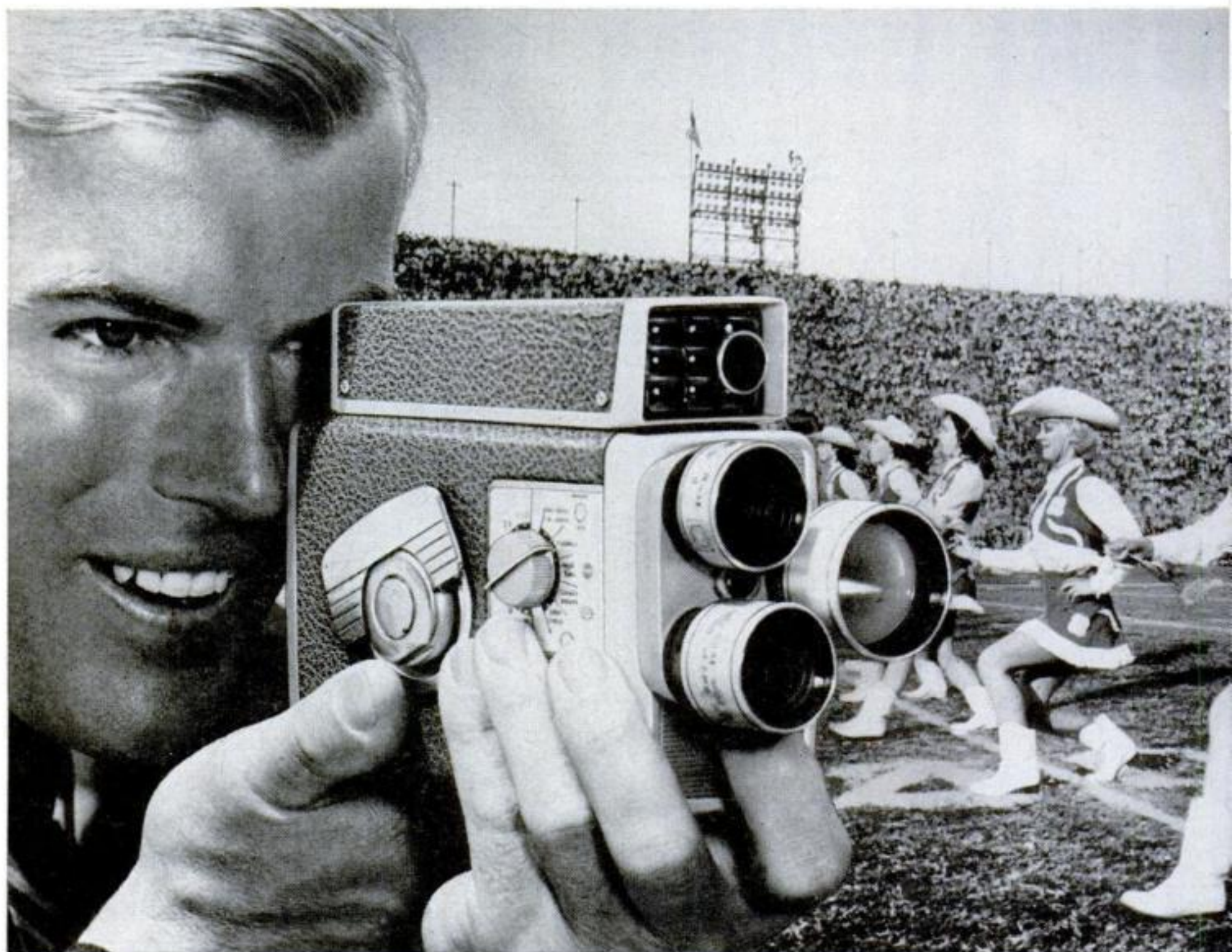


Smothens a million jolts a mile!

U. S. Royal's new super-supple rubber—born of new polymers, new processes, new production techniques—absorbs the "high-frequency" vibrations that cause driving fatigue. Gives you the "big-car" feel!

- No Bounce • No Sing or Squeal
- Less Scuff • Soaks Up Vibration
- Wears Longer

Now! Shoot perfectly exposed movies



Get *all* the action, *all* the color . . . with the Kodak Cine Scopemeter Camera, Turret $f/1.9$. \$99.50

Enjoy action-packed movies at a budget price—with 8mm Brownie Movie Equipment!



Brownie Movie Camera, Turret $f/1.9$. Three-lens range at a 1-lens price. Twist the turret for normal, wide-angle, or telephoto shots—and more exciting movies! Fast $f/1.9$ lens system gets bright, clear movies even on dull days. Only \$67.50, or as little as \$7 down.



Brownie 500 Movie Projector gives you brilliant 4-foot-wide screenings from a distance of only 16 feet. Accepts 400-foot reels for uninterrupted half-hour shows. Shows reverse action, "stills." Easy to load, easy to run. Only \$79.50 or as little as \$8 down.

...and show them automatically!

Kodak turret camera with built-in meter shows you when exposure setting is correct! New Kodak projector threads itself automatically . . . right onto the take-up reel!

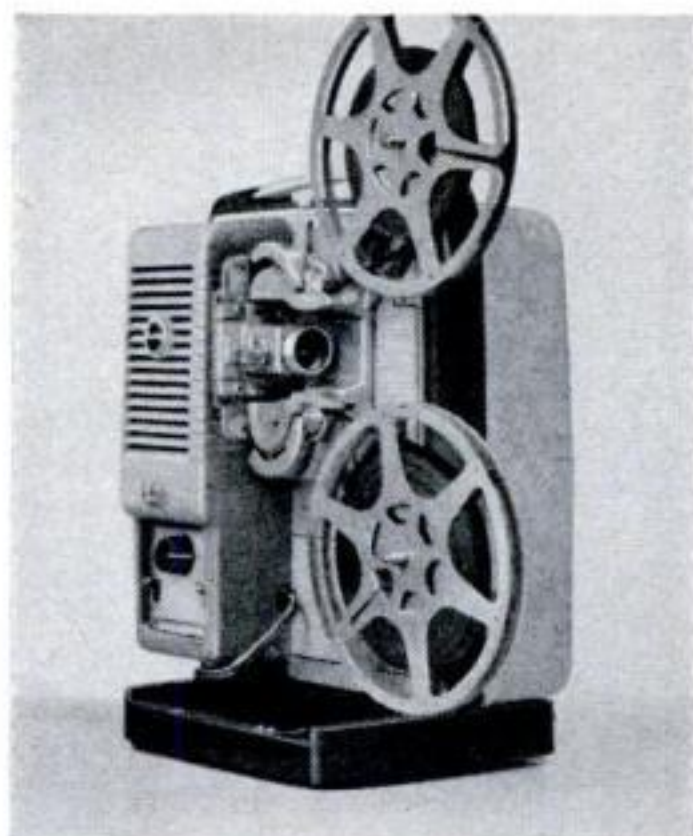
Now you can make 8mm color movies and know they'll come out beautifully every time. Shoot in dazzling sunlight. In deep shadow. Even indoors. Yet you never have to guess at the right exposure setting. Here's how:

Aim the Kodak Cine Scopemeter Camera at your subject. Automatically, the built-in exposure meter measures the light. As the meter pointer moves, you see it move—right in your viewfinder. Just position the pointer by turning a knob and—presto—you've set the lens!

Move from sunlight to shade, and back again, changing your lens opening *while you shoot*. You never have to stop shooting to check exposure. For special effects such as sunsets you can set your lens independent of the meter reading.

And you can get three kinds of movie shots—normal, wide-angle, or telephoto—with just a flip of the turret. Other features include built-in Skylight and Type A filters . . . easy loading . . . fast $f/1.9$ lens

system. All for only \$99.50, or as little as \$10 down at most dealers.



Show your movies automatically with the amazing new Kodak Cine Showtime Projector, Model A20. It threads itself from start to finish! Simply place your film leader at the top sprocket feed . . . the Showtime takes over from there. Threads right onto the take-up reel, starts your show automatically.

New high-lumen projection lamp provides brilliant screenings up to 5 feet wide. 400-foot reel capacity gives you uninterrupted half-hour shows. Price: only \$137.50, or as little as \$13.75 down at most dealers.

Ask your Kodak dealer to demonstrate this camera-projector team for you.

Prices are list and are subject to change without notice.

See Kodak's "The Ed Sullivan Show" and "The Adventures of Ozzie and Harriet"

EASTMAN KODAK COMPANY
Rochester 4, N. Y.

Kodak
TRADEMARK



What will the 1960 cars be like? One thing's certain: most makers of cars *and* trucks will use Champions!

Q. Why do 17 out of 21 U.S. truck manufacturers specify Champion spark plugs?

A. Because they know full-firing Champions are *dependable*. To get this dependable performance—plus extra mileage—in your car, put in new Champions every 10,000 miles.

World's favorite spark plug—engineered for every car built by Ford Motor Company, General Motors, Chrysler, American Motors, Studebaker-Packard and every major foreign maker.



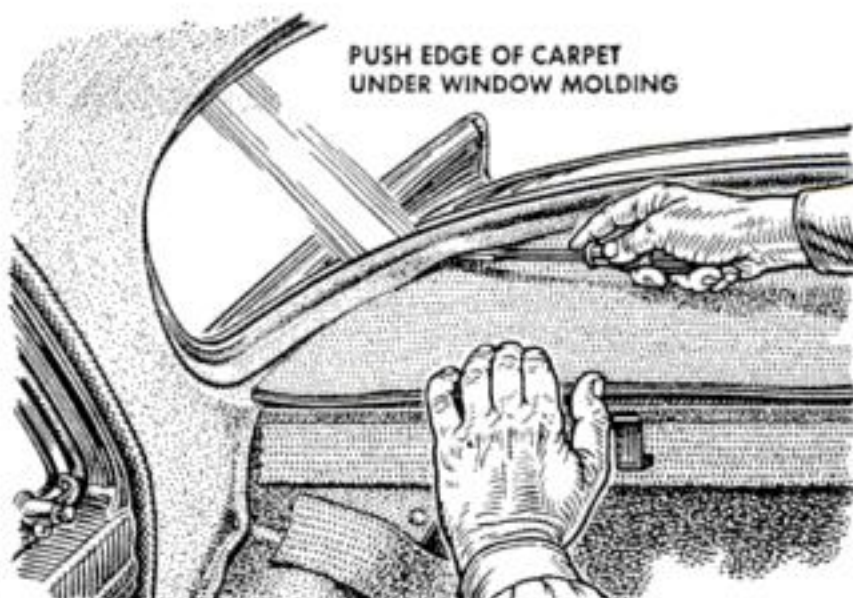
CHAMPION



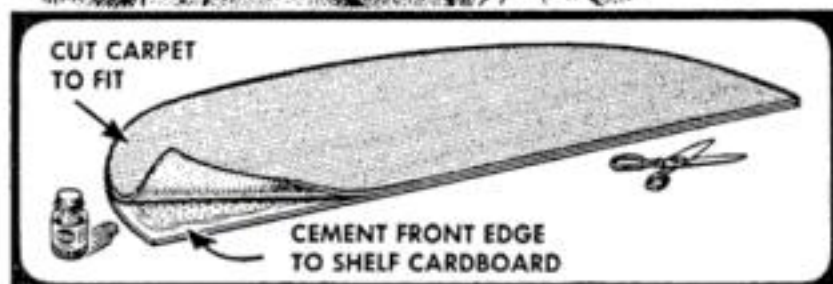
Hints from the Model Garage



A lost license plate has a good chance of being returned if you've painted your name and address on the back. Most people will take the trouble to return a plate if they know where to locate the owner. You might also guarantee the postage.



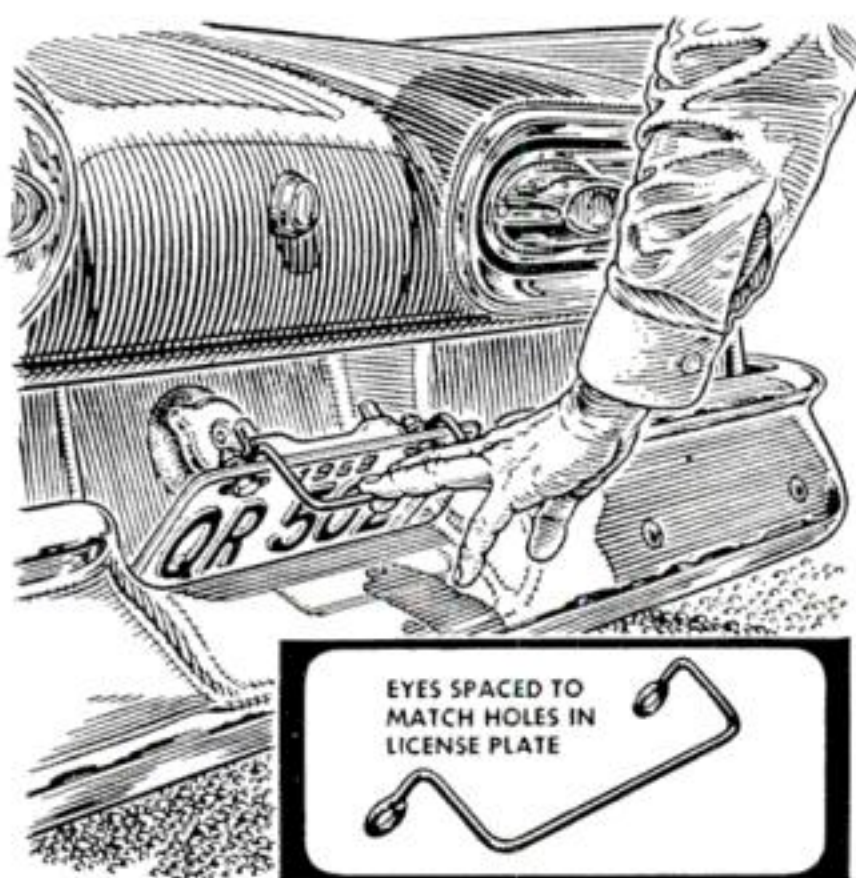
PUSH EDGE OF CARPET
UNDER WINDOW MOLDING



CUT CARPET
TO FIT

CEMENT FRONT EDGE
TO SHELF CARDBOARD

You can silence the rattling of loose objects on the package shelf by fitting it with carpeting. Appearance will be improved, too. Cement the front edge of the carpeting to the shelf, and tuck the other edges under the rear-window molding.



EYES SPACED TO
MATCH HOLES IN
LICENSE PLATE

A wire handle on the rear license-plate bracket will end the annoying slamming each time you buy gas. It'll save the rubber bumpers, too, as slamming often causes them to drop off. Bend the handle from heavy wire or a length of brazing rod.



VALVE
CAP

VALVE TRIMMED
TO FIT CAP
OF BOTTLE

Feed a thirsty battery the exact amount of water it needs without splashing by using a plastic nursing bottle. The rubber nipple can be used by snipping off its tip, or a tire valve can be trimmed to fit, and stoppered with a valve cap as shown.

CONTINUED

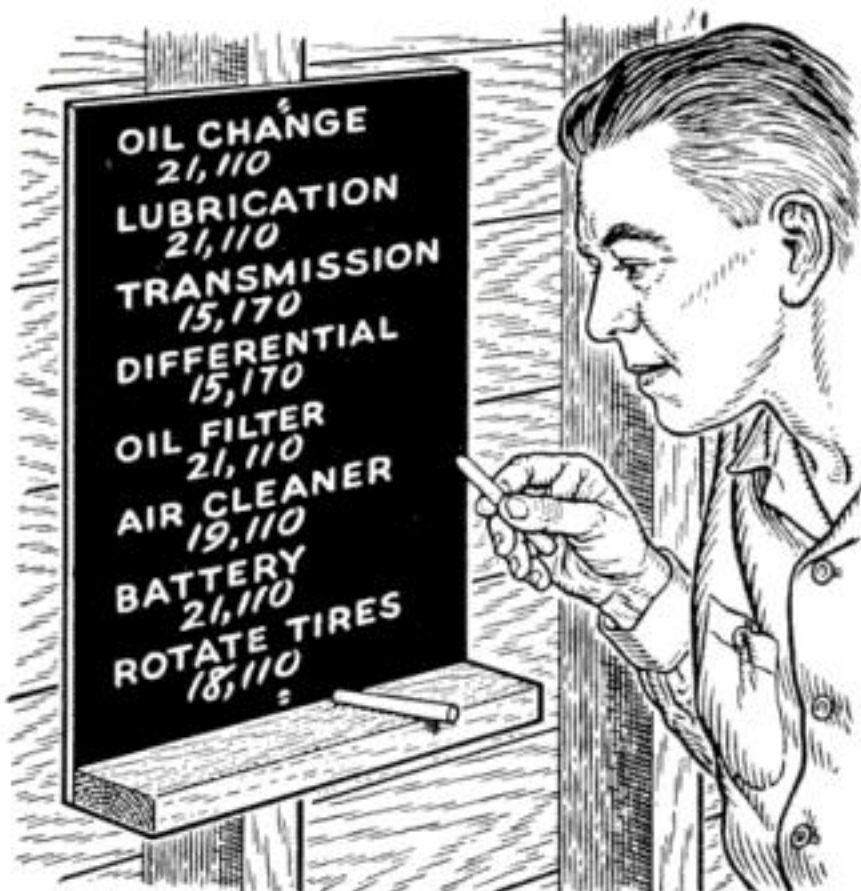
More Hints from the Model Garage



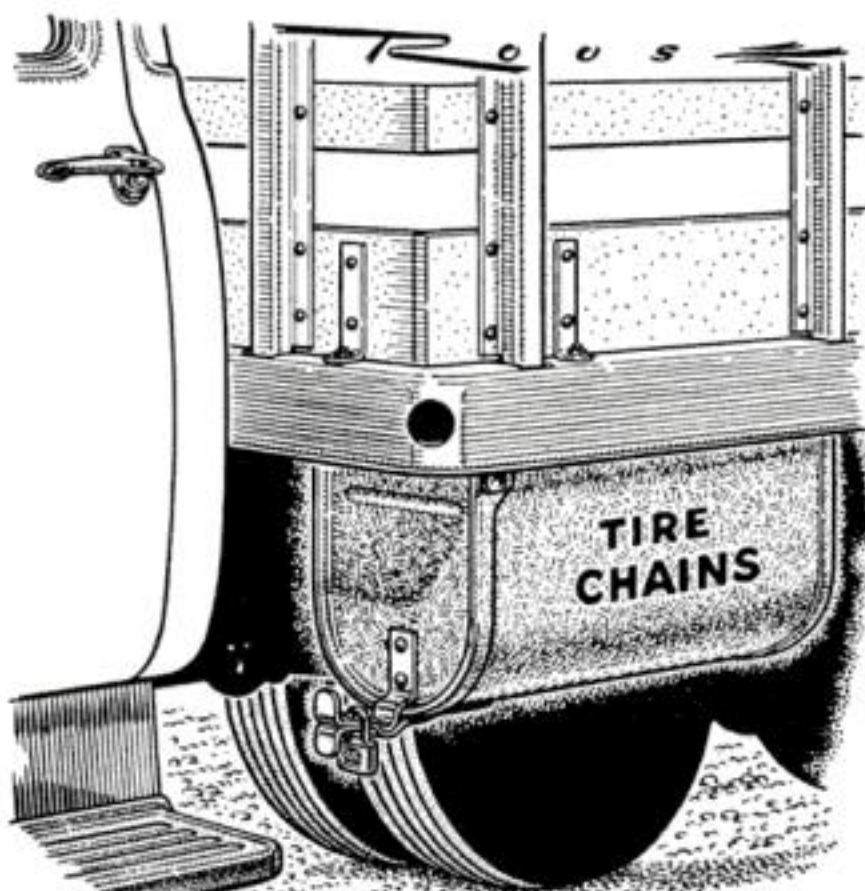
This emergency bucket can be folded flat to take less space than a road map in the glove compartment. It's a plastic vegetable bag. With it, you can carry several quarts of water to a boiling radiator that has forced you to stop at the roadside.



Sponge-rubber cushion material—the type used under home carpeting—makes good insulation for your car. Spot-cemented under floor mats and rear seat, it keeps out road noises and cold. It's clean, easy to cut, and won't fall apart when wet.

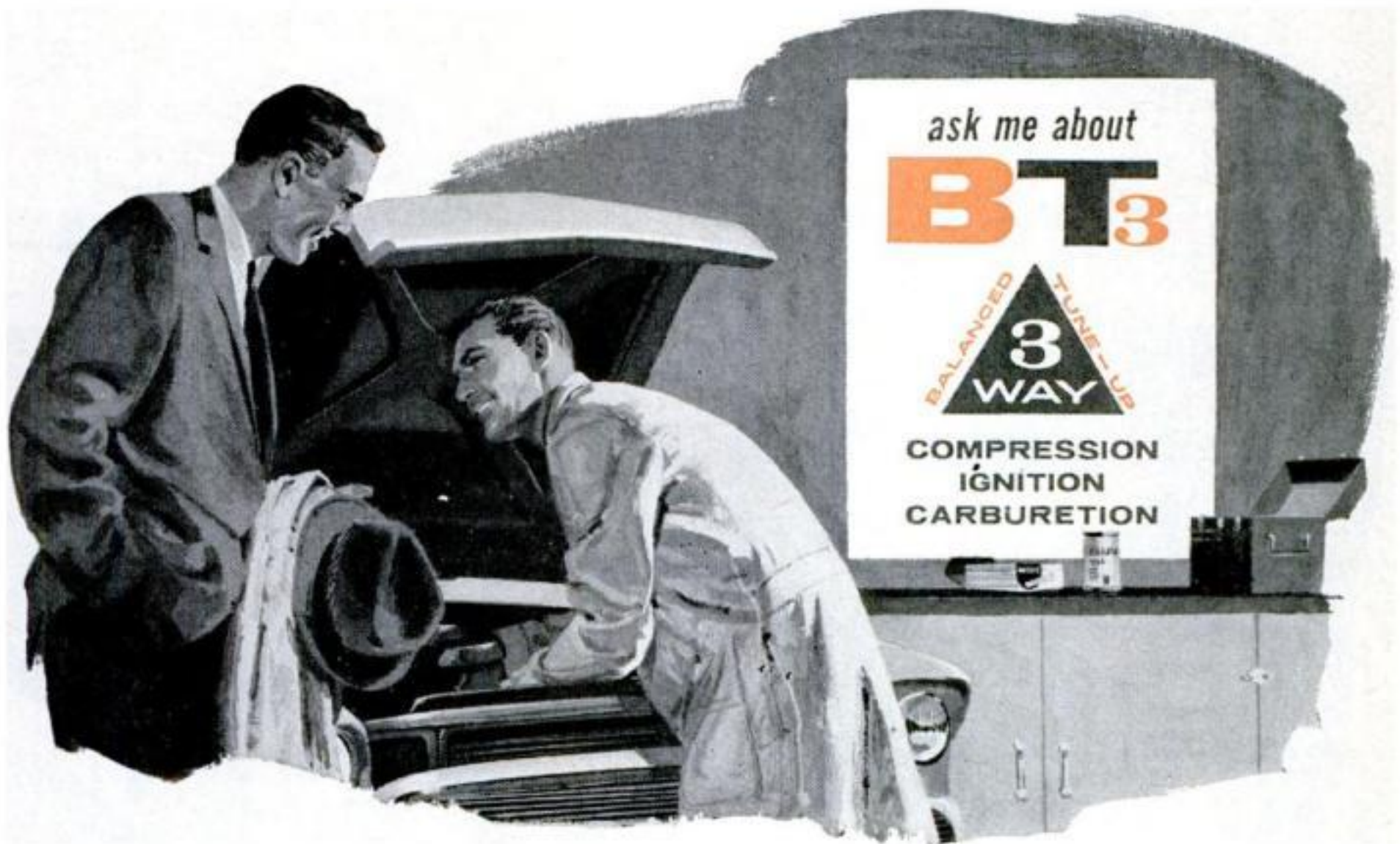


Keep car maintenance regular—especially if you do it yourself—with a chart on the garage wall. Cover a piece of $\frac{1}{4}$ " plywood with blackboard paint and add a narrow shelf. Letter service operations on the board and record mileages with chalk.



A rural-type mailbox bolted upside down beneath a truck body makes a quickly accessible storage locker for tire chains. Another box on the opposite side can store tools for roadside repairs and emergency flares. A padlock will prevent theft.

NEW **BT₃** ENDS TUNE-UP GUESSWORK!



NEW TUNE-UP CONCEPT BALANCES CARBURETION, COMPRESSION AND IGNITION TO RESTORE NEW CAR POWER!

Maintain the new car power, performance and economy that was designed into your GM car. Get a BT-3 tune-up . . . the *balanced* tune-up, three ways.

With this new concept, your compression, ignition and carburetion are checked, adjusted and restored to new car condition. Every replacement part is factory approved. For example, all carburetor parts are genuine parts for Rochester-GM

Carburetors . . . original equipment on more new cars than any other carburetor. And the whole step-by-step, scientific procedure of BT-3 is factory recommended.

Stop wherever you see the BT-3 sign, and enjoy the new car performance that only a balanced tune-up can give. Or if qualified service is your business, contact your nearby UMS distributor to learn how to give BT-3 to your customers.

ROCHESTER  **CARBURETORS**
GENERAL MOTORS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS, ROCHESTER, NEW YORK

Gus Fixes a Race



"Tooling against these local plow jockeys," said the driver, "is like taking candy from kids."

By Martin Bunn

THE coupe that pulled up in front of the Model Garage was a beat-up, prewar model, painted a lemon yellow. Two T-shirt-clad youngsters unstrapped the doors, swung them open on loudly protesting hinges, and climbed out.

"Junk yard's out on the edge of town, boys," Gus Wilson greeted them.

"Man, he doesn't know," said Cliff Johnston, his face one big smile.

"That's right," agreed his lanky partner, Jim Gerber. "This mechanical marvel, Mr. Wilson, has a destiny."

The two youngsters looked lovingly at

their pride and joy. Cliff sighed. "Isn't she a beaut, Gus?"

The Model Garage proprietor circled the vintage vehicle. The fenders had been trimmed off, the headlights removed, and a strongly bracketed steel-tube arch extended up under the roof.

"What is it?" he asked.

"Quit kidding," said the lanky one. "That's about the keenest stock car you've ever laid eyes on."

"Only one thing missing," put in Cliff. "We need a sponsor. Can't you just see it, Gus?—'The Model Garage Special' painted in big black letters."

"Now, wait, fellows . . ."



CONTINUED

Big Reason Why AC Spark Plugs Must Be the Best!

AC-Pioneered Insulator



They **must** be the best! **New**

Now Available at 302,000 Service Stations, Garages, Car Dealers, Farm Implement Dealers and Marinas

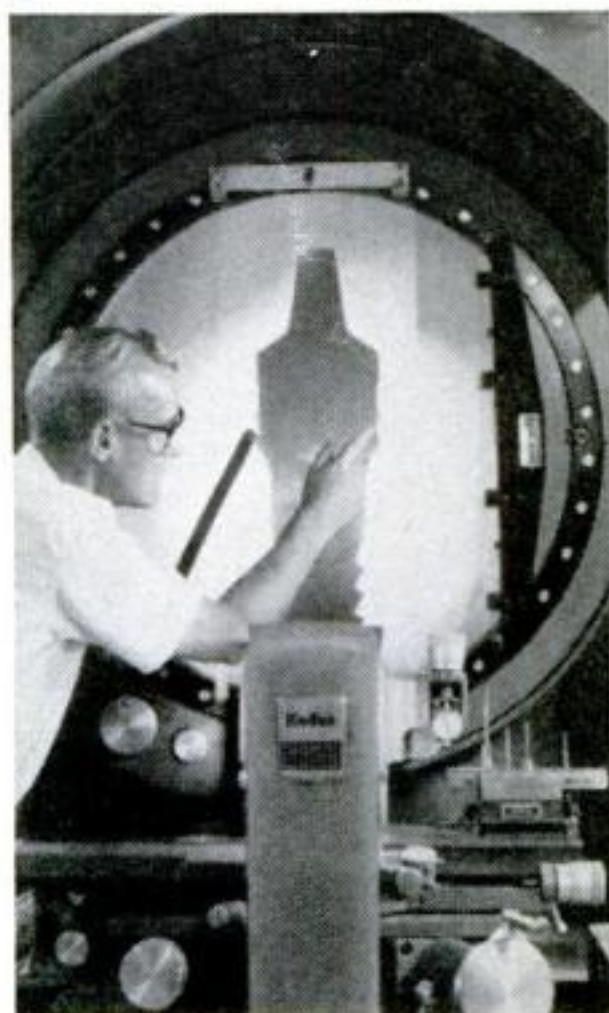
Leads Field in Quality!

ALUMINUM OXIDE—WHAT IT IS. The fine, white powder shown opposite is aluminum oxide. It is the basic material of the ruby, emerald and sapphire. It is made artificially from bauxite, the raw material of aluminum, and it is from this material that AC forms its spark plug insulators of gem-like hardness. AC pioneered and perfected the idea of aluminum oxide for spark plug insulators and uses it by the carload for the millions of AC Spark Plugs made for original equipment and replacement. Each carload is laboratory tested to rigid standards of quality and reliability.

SECRET FORMULA MAKES THE DIFFERENCE. AC ceramic specialists experimented with scores of formulae before they settled on the one considered ideal. From it came an insulator able to take higher stresses, and with longer life, greater resistance to breakage and better insulating characteristics than any previous material.

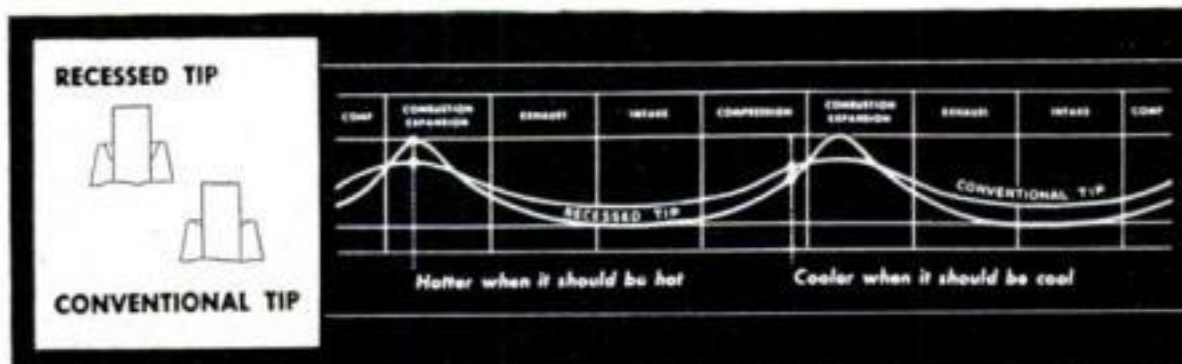
TESTING TO INSURE HIGHEST QUALITY. In the Kodak shadowgraph, at high magnification, insulators are given a highly accurate dimensional check. Further, samples of finished insulators are tested to withstand a 600 pound tensile pull that is well beyond the strength of other makes. There are weight tests, density checks and thermal expansion and conductivity tests. In total, some 116 reliability tests are given to AC Spark Plugs.

JEWELS IN EVERY SENSE. The ruby, emerald and sapphire are nature-processed aluminum oxide. AC Spark Plug insulators are man-processed aluminum oxide. In the gems, a trace of impurity lends color. AC insulators are pure white and have no crystalline fracture pattern. They are truly gems—but yours at a price far less than a gem, and no more than that of ordinary spark plugs.



AC SPARK PLUG  THE ELECTRONICS DIVISION OF GENERAL MOTORS

Pictures at right show how AC's exclusive Hot Tip is deeply recessed to clear the centerwire while ordinary tip hugs the centerwire. Graph shows the Hot Tip's faster-heating, faster-cooling action. Fast heating prevents fouling. Fast cooling prevents pre-ignition.



AC Fire-Ring Spark Plugs

AC PRESENTS THE ART CARNEY SHOW, NBC-TV, NOVEMBER 13



...with less oil and gas!

Don't put up with poor performance and big oil and gas bills just because your car's no longer new. You can restore its lost pep and power and prevent excessive oil and gas consumption, with a Hastings re-ring job.

The sooner you act, the less it will cost. See your motor specialist the minute oil-pumping warns you there's trouble ahead. When he recommends new piston rings ask him for Hastings. They're engineered exclusively for replacement service . . . to provide the additional lubrication worn engines need . . . to stop oil-pumping, save gasoline, restore lost performance.

Get new car power and performance from your present car—with Hastings. Truly your best investment for many thousands of extra miles of trouble-free driving pleasure.

HASTINGS

PISTON RINGS

TOUGH on oil pumping **GENTLE** on cylinder walls

HASTINGS MANUFACTURING COMPANY
HASTINGS, MICHIGAN

Piston Rings, Casite, Oil Filters, Spark Plugs

"Yes, sir," broke in Jim, not giving Gus a chance. "And in exchange for this fabulous advertising all we want is your technical assistance a week from Saturday at the County Fair stock-car race."

Gus held up one hand like a traffic cop. "What you two fast-talkers don't know," he said, "is that this year I'm heading up the technical-inspection committee for the race."

"What's this technical committee?"

Gus explained that the Fair Board was increasing the purses. With bigger prizes, unscrupulous entrants might be tempted to sneak extra, illegal horsepower into their engines. "And," he concluded, "as a race official, I can't sponsor an entry."

They nodded. Cliff spoke: "Well, Jim, guess we'll have to take up that offer of the Jones Fruit Market to sponsor us."

Gus saw how disappointed his visitors were. "Tell you what," he said. "Drive around a couple of nights before the race and I'll tune up that heap for you."

ON THE day of the race, Gus watched the trials from the timer's stand, checking now and then on the times being turned in by the stock cars as they roared around the dirt oval. With him were Stan Hicks, his assistant, and portly Joe Green, the Fair Board representative on the technical committee.

"Looks like Johnston and his yellow menace may barely qualify," Gus said.

"Got my fingers crossed," Stan said. "But watch Car 14. Bet he'll turn in a time 10 seconds faster than the others."

"Been keeping my eye on him, Stan." Gus turned to Joe Green. "Is 14 local?"

Green checked a list. "Nope," he said. "Fellow named Hawkins, from upstate."

"He's pretty hot," Stan prodded.

"That's what I'm thinking," Gus agreed. "That car 14 is due for some special attention during pit inspection."

In the pits, Gus went over the cars. Peering intently at one engine, he wiped a finger across the carburetor body. Then he moved back, removed the gas cap, and bent over, sniffing.

"What's he looking for, Stan?" asked a puzzled Joe Green.

"Souped-up fuel—alcohol, ether. Usually you can smell it."

Gus gave an okay sign with his thumb and forefinger and headed down the line. Most of the drivers he knew. At car 14

Gus introduced himself to the driver. "Name's Wilson," he said. "Technical committee. Congratulations on turning in the fastest trial time on our track, Mr. Hawkins."

"Duck soup," said the driver, chewing on the stub of a dead cigar. "Tooling against these local plow jockeys is like taking candy from kids."

Gus ignored the crack. "You understand we're strictly stock here?"

Hawkins nodded. "Strictly stock. Look her over, Mr. Wilson."

"Let me hear what she sounds like."

Hawkins shrugged, slid behind the wheel. The engine roared to life.

"Now let's drain the water and pull one of the heads," Gus said.

Hawkins jumped out of the car, fighting mad. "Look, Mister, I got an honest mill here."

Gus felt a tug at his sleeve. "Better be sure, Gus," Joe Green said timidly. "The Board doesn't want any trouble."

"Yeah!" Hawkins glowered. "You ready to post the \$50 challenge money?"

"That's the rule here," Gus said calmly. "Tear it down."

When Hawkins and his mechanic had drained the radiator and removed the head bolts, Gus went to work. He looked into the valve ports for signs of enlargement or polishing. A measurement of valve lift ruled out the high lift of a special camshaft. There was no indication of excessively milled heads.

Gus straightened up and turned to Stan. "How about getting my inside micrometers? I want to measure bore size to check for a stroked crank."

"Here, use mine," said Hawkins, taking a set of mikes from his toolbox.

As Gus selected the proper mike stem and slipped it into the thimble, Joe Green edged near Stan. "What's he after now?"

"A special crankshaft," Stan told him, "that lets the pistons make a longer stroke. Increases displacement—and horsepower."

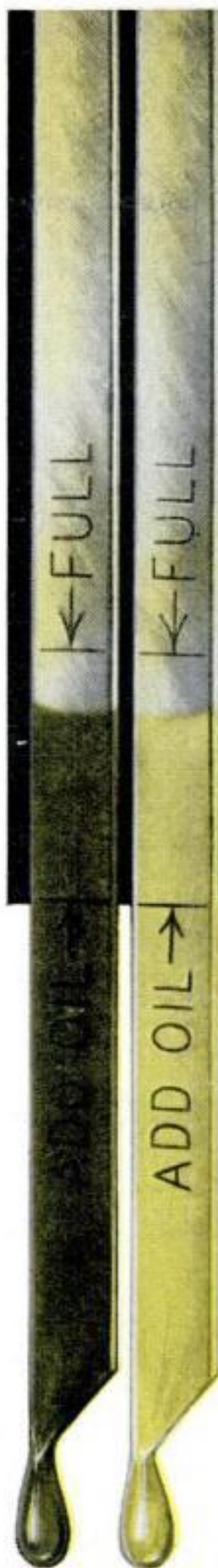
"Looks okay," Gus said.

There was a look of smug satisfaction on the driver's face. "Just be sure you have that \$50 challenge money ready for me when I've won the race."

DOWN the line Cliff Johnston and Jim Gerber were working frantically,

CONTINUED

Your dipstick **PROVES** the difference in filters



Hastings Oil Filter Cartridges keep oil clean from filter change to filter change, when replaced as normally recommended.*

That's because only Hastings has Densite filtering material, which traps and holds even the most microscopic dirt particles. The dipstick test proves it!

Just ask for Hastings—next filter change. Be sure of clean oil *all* the time.

*Proved by tests conducted in accordance with U. S. Bureau of Standards.

U. S. Patent Numbers 2,797,811 2,584,771



HASTINGS

**OIL FILTER
CARTRIDGES**

**HASTINGS MANUFACTURING COMPANY
HASTINGS, MICHIGAN**

Oil Filters, Casite, Piston Rings, Spark Plugs

tools spread out around their yellow japopy. They looked up hopefully.

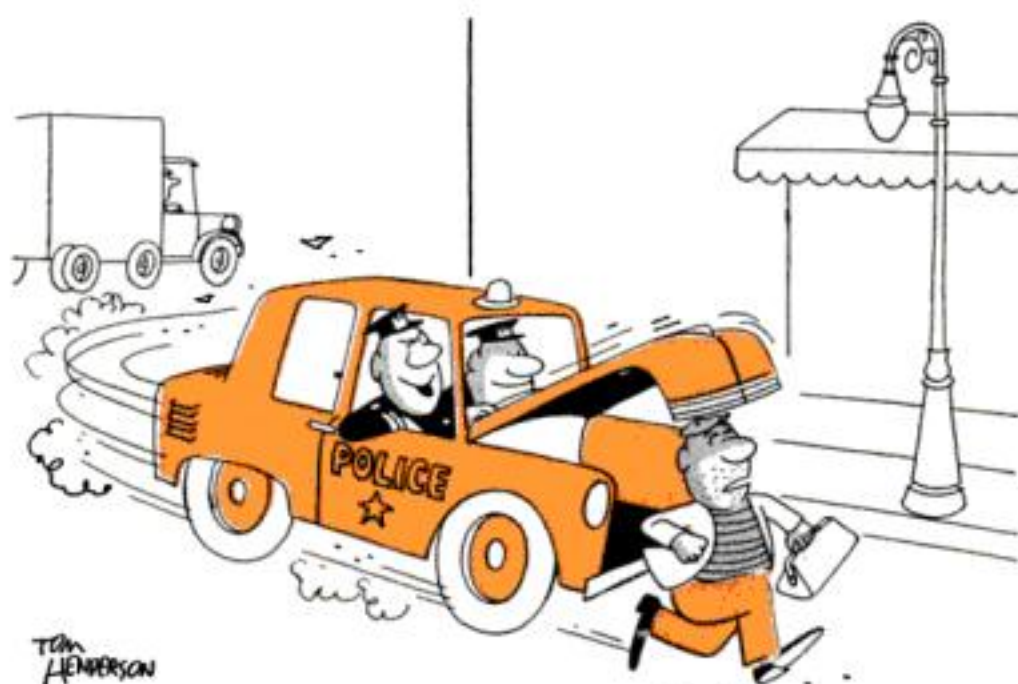
"Stan, check the fuel tank," Gus said, "while I take a look at the engine."

"Gee, thanks," Cliff said. "Maybe you can find out why it almost dies when I tromp it hard coming out of the turns."

"Aren't you two forgetting that I'm an inspector today, not a mechanic?" Gus said as he went over the engine. He paused, took a close look. "Sorry, boys, you'll have to remove this fuel filter. It's not stock for this engine."

"Oh, no," protested Gerber.

"Oh, yes," Gus said. "Either put on a stock filter or pipe it up without a filter."



"We've gotcha this time, Googan!"

GUS was relaxed in a chair in the timer's stand, puffing on his pipe, when Stan climbed up, balancing two cardboard trays. "Here, boss," he said. "Thought you'd like a snack before the feature starts—soda pop and 'foot-long' hot dogs."

"If that thing is a foot long, I'll . . ." Gus jumped up. "That's it, why didn't I . . ." The rest of his words were drowned out by the crescendo roar of engines as the pack accelerated to the sweep of the starter's flag.

When the noise had subsided, Gus waved the frankfurter in his assistant's face. "That Hawkins engine is no more stock than this wiener is a foot long."

Stan's face was a blank.

"Think, Stan," Gus went on. "I used his mikes to measure the engine bore. How big a sucker can you be?" He

headed for the announcer, whose voice was blaring from the loudspeakers:

"It's Hawkins in car 14, way out in front . . . Looks like he may add this feature to his string of victories here today . . . Wait, here's a word from our technical committee . . . Car 14 will be impounded at the completion of the race."

SECONDS after the race had ended, a furious Hawkins appeared at the timer's stand. "Now what's the beef, Wilson?" he stormed, yanking off helmet and goggles. "I won that race fair and square."

"Not for my money," Gus said calmly.

"Well, I'm not tearing my engine down again for you or anyone else."

"You won't have to, Hawkins. Just let me see that micrometer stem of yours. The one that reads maybe—oh, about an eighth-inch under actual size."

"So you finally caught on to that trick."

Joe Green gave the driver a reproving look. "You admit cheating?"

Hawkins gave a laugh. "Sure. And I almost got away with an oversize bore."

AS THE disqualified winner drove away, Cliff and Jim stepped up.

"And that puts us third," Cliff said, "and in the prize money. But we're still sore at the way you treated us at pit inspection."

"Yeah," Gerber chimed in. "We had some time cobbling up the fuel line."

Gus chuckled. "I figured that might bring you boys into the money."

The two looked at him dumbly. Then Cliff gulped, "How's that?"

Gus explained that paper-element fuel filters should be changed often, or they might let small amounts of water seep through, swell, and restrict gas flow.

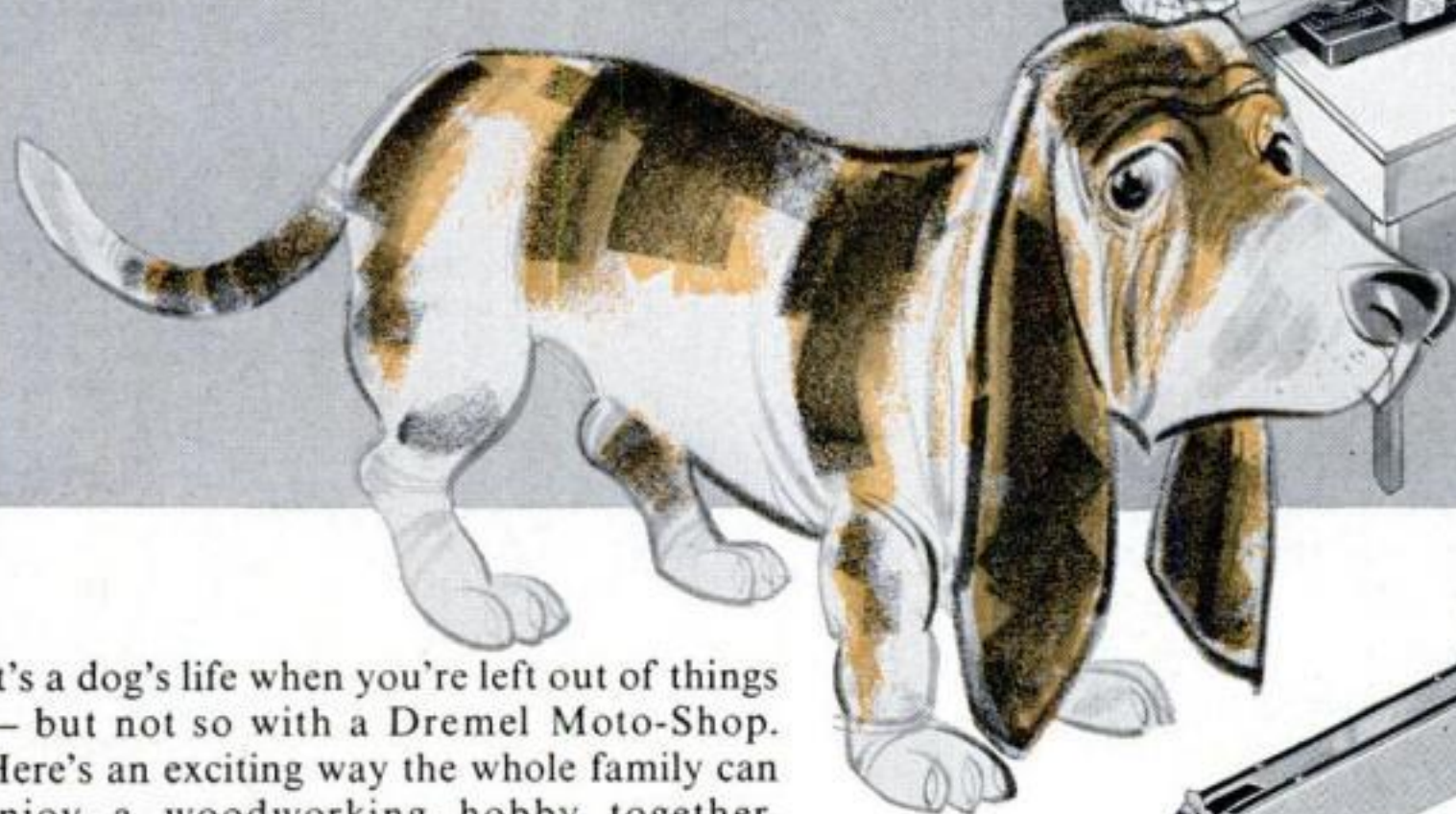
"And that," he said, "seemed to be the only thing that could be causing the trouble you described. Remember, I overhauled your car only a few nights ago?"

Gerber nodded.

"And just because you billed that yellow monstrosity as 'Jones Fruit Salad,' I couldn't let you drive a lemon."

Next Month: Gus pulls a switch.

*"I'm the only one in the family that can't use the **Dremel!**"*



It's a dog's life when you're left out of things — but not so with a Dremel Moto-Shop. Here's an exciting way the whole family can enjoy a woodworking hobby together. Teaches children to be creative and helps cut down the TV habit.

Not a cumbersome cast iron model, but sturdy, lightweight, portable — and safe. Unique blade guard protects even the littlest hands. Simple operation — make gifts, toys, furniture, practical items for the home.

Treat your whole family to a Dremel Moto-Shop. America's most popular and useful multi-purpose tool.

- **Large capacity** — Has 15" throat — cuts 1 3/4" wood, light metal, tile, plastics.
- **Powerful ball bearing motor** — not a vibrator. 3,450 strokes per minute.
- **4-way blade holder** — saws in any direction.
- **Lightweight, sturdy** — easy to carry or store away.
- **Tilting table** — Tilts 45° for angle and bevel cuts.
- **Adjustable table** — Raises or lowers to new blade area.
- **Economical** — Self contained — no extra motor — no belts or pulleys.

A complete power workshop in 1 compact portable unit. Two models to meet any family's need.

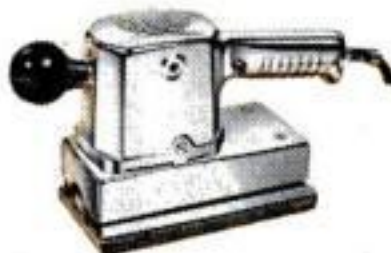
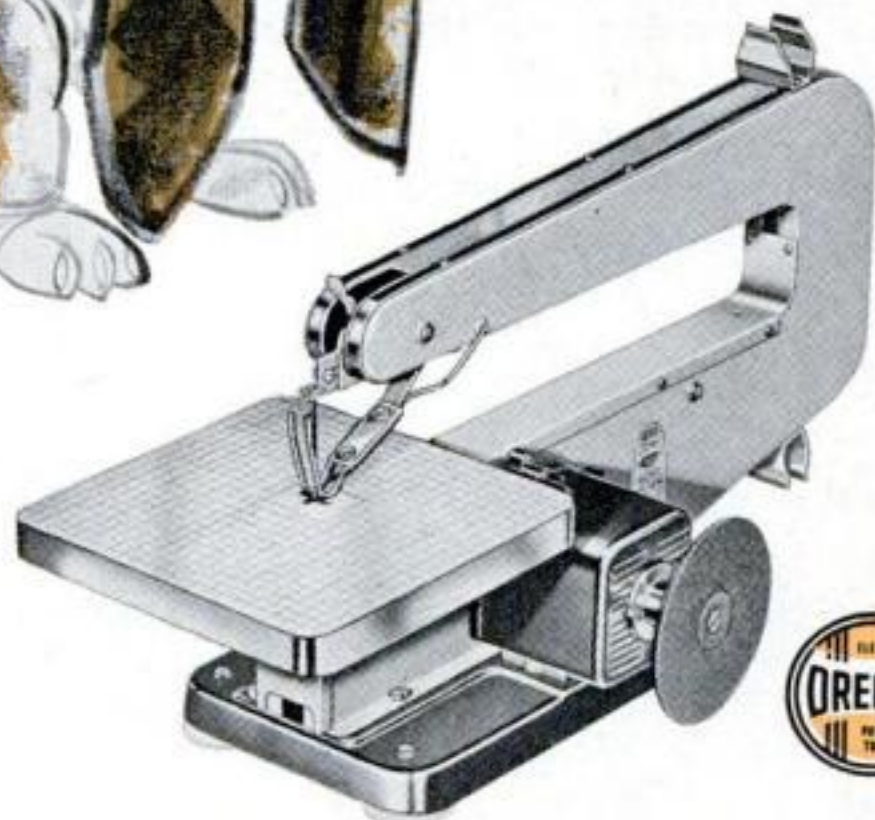
Model 571 Moto-Shop. Includes 15" Jig Saw with disc sander attachment only as shown above. . . **\$33.95**

Model 572 Deluxe Moto-Shop. Includes 15" Jig Saw with disc sander, grinding wheel and guard, wire and cloth buffing wheels, a 12 piece accessory set, and 30" flexible shaft (grinds, drills, carves, polishes, engraves, sands, sharpens). **\$49.95**

Ask your Power Tool Dealer for a Demonstration

WRITE FOR FREE LITERATURE

DREMEL MFG. CO. Dept. 129-K Racine, Wis.
QUALITY POWER TOOLS SINCE 1934



DREMEL POWER SANDERS — All Dremel Sanders have it — *Straight-Line Action!* Means you sand with-the-grain, get the smoothest finish. No swirl marks, no scratches. Three models — from **\$14.85** to **\$37.50**.



DREMEL MOTO-TOOL KITS — A compact, pocket-size machine shop. Grinds, polishes, carves, sharpens, drills, engraves. For fine detail work at home or shop. Speed range from 25,000-27,000 rpm. Prices, **\$14.85** to **\$27.50**.



DREMEL MOTO-SAW — The scroll saw everyone can use skillfully. Cuts the most intricate designs accurately at 7200 strokes per minute. Saws 3/4" wood, light metal, plastics, floor and wall tile. **Model 203 . . . \$6.85.**

Better Your Home with these terrific



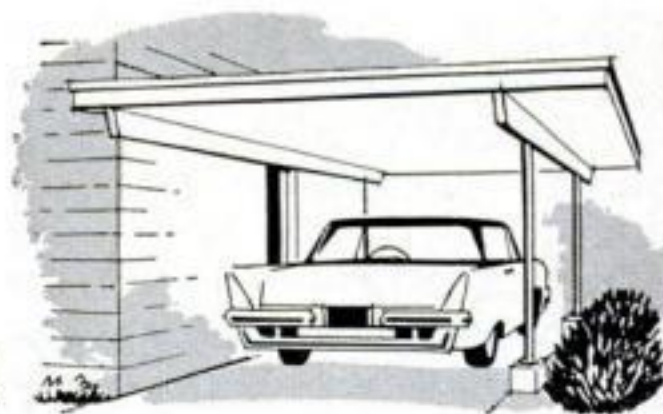
MODEL H75

Heavy-duty sabre saw — only \$44.50, plus 7 blades worth \$4.90—FREE! Lowest-priced heavy-duty sabre saw you can buy. Cuts scrolls, curves, wood, metal. Special blades cut flush up to a wall and to $\frac{5}{8}$ of an inch along a wall.



MODEL H131

\$6.00 off on 3-amp $\frac{1}{4}$ " drill. Reg. \$24.95 Stanley special fall price—\$18.95 Most powerful $\frac{1}{4}$ " drill for the price on the market. *Plus* rugged bearing construction, non-slip pistol grip, 3-jawed geared chuck, 3-wire cord.



Electric tools built for the professional,

... On Your Own Stanley power tool specials

MODEL H36

Heavy-duty orbital sander — \$49.95
Get 2 permanent abrasives . . . FREE!
 You save \$4.00 and lots of work, too. Powerful, rugged, the H36 gives satin-smooth finishes, fast!



MODEL H81

Save \$4.30 on new power drill kit.
A \$43.25 value, now only \$38.95.
 Complete with 3-amp 1/4" drill, steel case, and 19 extras, including famous SWIRLAWAY sander/polisher.

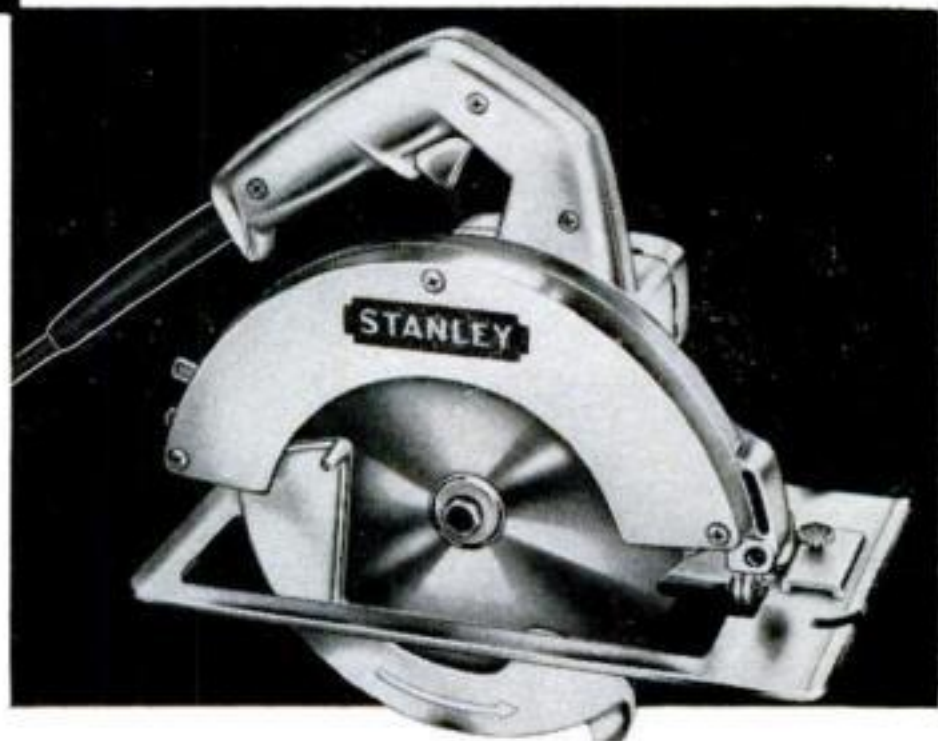


MODEL H268K

\$15.00 off on complete builders saw kit. \$67.95 value . . . now — \$52.95
 Powerful 6 1/2" saw has rear controls, Free-start guard, ball-bearings. And you get case, etc.—free!

Stanley Electric Tools, Div. of The Stanley Works, New Britain, Conn.

Prices slightly higher in Canada
 Canadian office: Hamilton, Ont.



priced for everyone **STANLEY**®

Master LAMINATED Padlocks



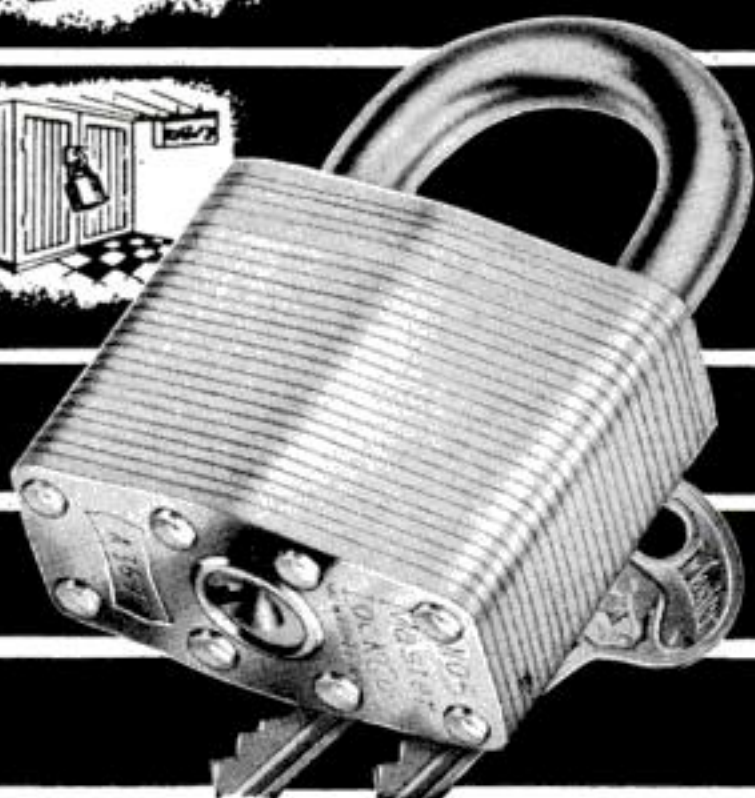
protect
your



property
and



valuables!



\$1.25 to \$4.00, in a variety of sizes, at
locksmiths and hardware stores everywhere

Master Lock Company.

MILWAUKEE 45, WISCONSIN
World's Largest Padlock Manufacturers

Fast-Draw Fad Brings Boom to Handguns

[Continued from page 138]

people shooting each other, but of people shooting themselves with guns that never left their own holsters.

For this reason, most gunslingers use blank cartridges or wax bullets, and race electrical timers. One timer, sensitive to sound, starts when the gun hand releases a button and stops when the gun fires. It measures, in hundredths of a second, the speed of the draw, but not its accuracy. Other types record elapsed time only if a wax bullet strikes a target, measuring both speed and accuracy.

The high cost of timers—about \$150—has confined them to organized clubs. But the fast draw may soon become a living-room pastime. Crosman plans a low-cost timer that will record either the impact of bullets on a target or—for home use—simply the sound of an unloaded gas pistol or kid's capgun.

Amusement or menace? Modern gunslingers, despite their numbers, are waging an uphill battle for acceptance. Many hunters and target shooters look down on the leatherslapping slicksters in much the same way as sports-car enthusiasts did the early hot-rodders.

Exactly how many faddists foolishly mow each other down in the name of fun is not yet known because the sport is so new. The critics cite the 14,000-odd deaths a year caused by guns of all types, sometimes neglecting to point out that 4,000 of these are homicides and 8,000 are suicides. Of the remaining 2,000, a third to half are hunting accidents that can't be blamed on handguns.

Even such powerful pro-gun lobbies as the National Rifle Association were quick to see how a few crackpots and showoffs could spoil the fun for everyone. In a recent editorial, the *American Rifleman*, official NRA publication, cited a dozen tragic accidents and stressed the need for safe gun handling.

Meanwhile, gun makers, weary of hearing only horror stories about their products, enjoy an occasional laugh. Seems a bad fire in the Ozark Mountains drove thousands of snakes into populated towns. "You should have seen those orders pour in," says a High Standard official. "I guess the sixguns did the job because we're still getting letters about how there aren't any more snakes in the Ozarks."

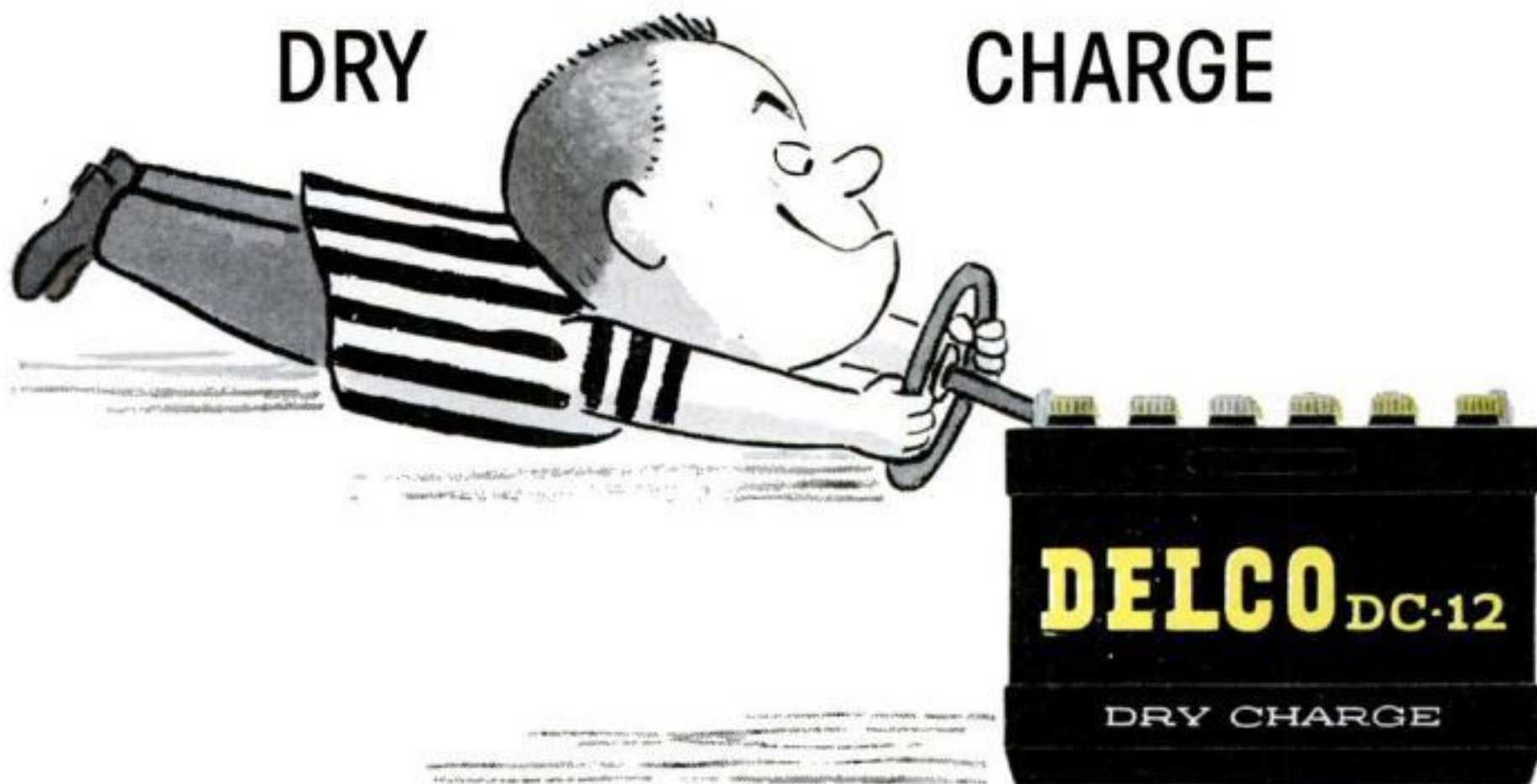
**CHEVROLET
PONTIAC
OLDSMOBILE
BUICK
CADILLAC
GMC TRUCKS**

*all
1*

START WITH DELCO DC-12

DRY

CHARGE



In a mere ten years the electrical requirements of automobiles have tripled! And the only batteries that can meet this increased demand for power are those which are specifically designed for the job. The Delco DC-12 is!

It's a hard-working dry charge battery built to handle the extra demands of high compression engines and power equipment. Moreover, it's the only battery designed and manufactured by an automobile producer. These are important reasons why, when you replace, you should ask for a Delco DC-12—the 100% fresh battery that is factory installed on almost half of the new cars built.



GENERAL MOTORS STARTS WITH DELCO BATTERIES

Brand-New Show — Brand-New Star — "The Art Carney Show" — NBC-TV



SUPREME VERSAMATE

Versamate . . . a wonderful tool that fits any power drill—reduces speed to give seven times more power. Drives screws of all sizes. Inexpensive extras make it a nut and bolt driver, heavy-duty drilling unit. See your tool dealer today!



\$9.95

ONE OF THESE FINE TOOLS
WILL TAKE THE WORK OUT OF

woodworking

Ask the "pro"...your tool or lumber dealer

\$14.95

Versamatic triples portable drill usefulness. *Reverses!* Drives and removes screws, nuts, bolts. Boosts power 7 times. Set includes regular and Phillips-type bits, and $\frac{1}{4}$ " square drive adapter. For heaviest drilling jobs in steel and concrete, add a $\frac{1}{2}$ " Supreme Brand Chuck.

SUPREME VERSAMATIC



**SUPREME PRODUCTS
CORPORATION**
2222 S. Calumet, Chicago 16
Div. of A • S • R Products Corp.

Firemen Burn a School to Save Lives

[Continued from page 89]

third floor to a still-sizzling 245 degrees.

Smoke from an unrestricted fire in a second-floor classroom—simulating a laboratory blaze, for instance—was worst in the floor above. Firemen were routed from the third floor in $4\frac{1}{2}$ to six minutes; from the second floor in $4\frac{1}{2}$ to $10\frac{1}{2}$ minutes. On both floors, heat became intolerable in seven to 10 minutes.

The answer: water. Of all the protective measures tested, only water—applied directly and immediately to the blaze—kept the smoke and heat from reaching dangerous levels everywhere in the building. That means only a complete, automatic sprinkler system can insure safety.

Other methods failed.

A partial sprinkler system held the heat down, but had no effect on smoke.

Automatic vents over stairways—an idea often proposed—proved to be of little help. The vents slowed the spread of smoke slightly but made the heat spread faster.

Complete enclosure of vented stairwells, another promising safety device, was rejected by the Los Angeles firemen. The doors might be left open, destroying the chimney effect of the stairwell.

Draft curtains in the corridors kept down heat on the side opposite the fire, but only slightly hindered smoke.

The tests demonstrated that acoustical tile, so widely used in schoolhouse ceilings, spreads fire very rapidly once ignited. However, the tile did not ignite until *after* the rooms beneath it were already too full of smoke and too hot for anyone to survive there.

Money vs. lives. While the fire experts are confident they know how to safeguard old schools, they must still convince officials. Complete sprinkler systems are expensive: \$10,000 or \$12,000 for the average building.

But Los Angeles Battalion Chief John G. Degenkolb is quick to point to the case of San Francisco's Jefferson School. Last May fire gutted this 39-year-old building.

"It will cost San Francisco a million dollars to rebuild that school," Degenkolb says. "For that money, they could have put an adequate sprinkler system in every school in the city!"

TRULY NEW...ALL NEW...from **YUBA** **SAWSMITH** Radial Arm Saw

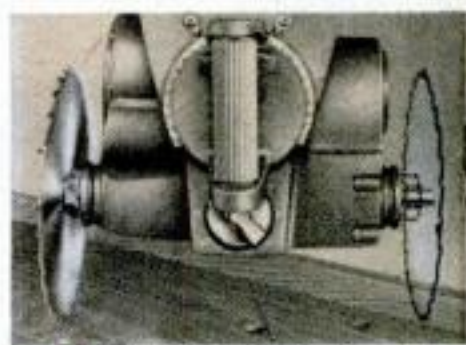
with the
BIG 5
exclusive features



1. EXCLUSIVE...Out-Front Controls
— one hand loosens, locates, locks



2. EXCLUSIVE...Vari-Speed Drive
— 7 speeds, not just one



3. EXCLUSIVE...Switch-Over Blade
— puts all cuts fully on table



4. EXCLUSIVE...one-piece Sliding Table
— no fence-fumbling



5. EXCLUSIVE...Coil Cord — safely and always out-of-the-way

Now...do it *yourself*—do it better—on a SAWSMITH. It's the newest radial arm saw...*does* so much more but costs *no more*. The exclusive Big 5 features put new ease into every phase of woodworking. SAWSMITH makes home craftsmanship so simple you do a professional job the *very first time*!

You just decide and guide. SAWSMITH furnishes skill and precision for *fourteen* basic operations, does hundreds of jobs...enables you to convert instantly

from one operation to the next. It's the *only* saw with the right speed for every power sawing job—from softest pine to toughest oak.

Whether you're a hobby-man or handyman, you'll find SAWSMITH a revelation in time and money-saving...a responsive tool for creative man-type talent.

See it at your dealer or Montgomery Ward store. For literature on SAWSMITH's exclusive BIG 5 features and 25 extra values, write Dept. RPS-10.

Manufacturers
of world-famous
SHOPSMITH Mark 5

YUBA POWER PRODUCTS, INC.

800 EVANS ST., CINCINNATI 4, OHIO

A Subsidiary of

YUBA CONSOLIDATED INDUSTRIES, INC.



Two Soldering Temperatures make this the world's greatest soldering gun value!



Weller®

DUAL HEAT SOLDERING GUN KIT

Features the new Weller Dual Heat Gun—most advanced soldering tool on the market. Not only does the heat and spotlight come on instantly when trigger is pulled, but 2 trigger positions give 2 soldering temperatures. You can switch instantly to high or low heat as your job requires.

Kit also includes
cleaning brush,
soldering aid
and solder

\$7⁹⁵
MODEL
8200K

Don't settle for less than these Weller Gun Features

DUAL HEAT Saves time, adds convenience and increases tip life. You use high heat only when necessary.

LONG LIFE TIP Utilizes copper for superior heat transfer, plus iron plating for durability and long life.

INSTANT HEAT Pull the trigger and tip heats instantly—no waiting. Release and heat goes off.

LONG REACH Slips easily into tight spots and makes soldering easier. Tip can also be bent, if desired.

SPOTLIGHT Prefocused to throw a beam of light right where you're soldering. No flashlight needed.

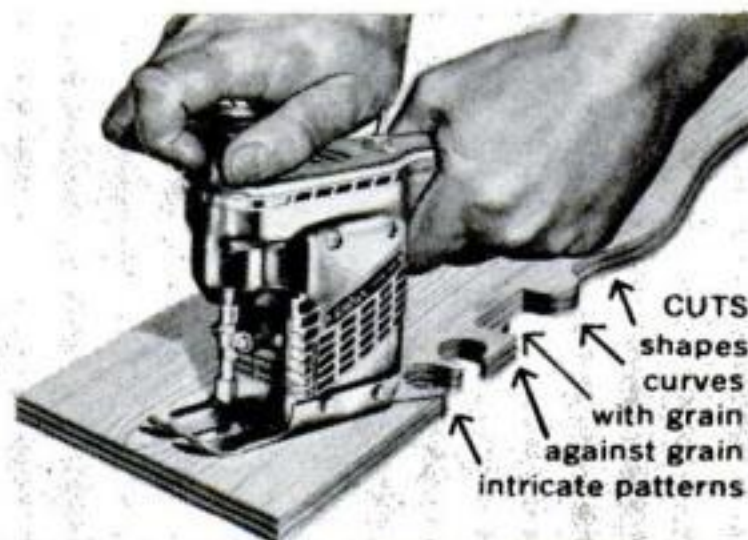
RUGGED HOUSING Streamlined design. Perfectly balanced. Pistol grip lets you guide the gun easily.

You can make every kind of cut with a **WELLER SABRE SAW**

Cuts through plywood, composition board, aluminum, plastics, etc. Even makes its own starting hole for inside cuts. And it's portable—use it anywhere. Exclusive strain-relief design eliminates blade breakage. Lubricated for life. 3 different blades included.

MODEL 800

\$19⁹⁵



AT YOUR HARDWARE OR HOBBY DEALER • WELLER ELECTRIC CORP., EASTON, PA.

ALABAMA
Birmingham...
Berman Mercantile Co.
Central Seed & Hdwe. Co.
Homewood Paint & Hdwe.
Co., Inc.
Star Hdwe. & Sup. Co.
Montgomery... Mathers Hdwe.
Parker Sledge Hdwe. Stores

ARIZONA
Glendale...
Grand Ave. Lumber & Hdwe.
Phoenix... Joe's Hdwe.
Scottsdale... Scottsdale Hdwe.
All O. S. Stapley Stores

ARKANSAS
Fort Smith...
Fort Smith Vehicle Co.
Little Rock...
All Link-A-Way Stores
Besser Hdwe.
North Little Rock...
Lake Hill Hdwe.

CALIFORNIA
Bellflower...
DeJona & Sons Hdwe.
Beverly Hills... Pioneer Hdwe.
Carmichael...
Carmichael Hdwe. Sup. Co.
El Cajon... The Hayseed, Inc.
Escondido... Churchill & Cassou
Fresno, Downtown, Manchester,
Tower, Palm-Shaw...
Walter Byde Co.
Fresno... Fresno AG Hdwe.
Glendale... Cornwell & Kelly
Hayward...
Skagg's Hdwe. Supermart's
Long Beach... Imperial Hdwe. Co.
Los Angeles... Entz & Rucker
Koonz Hdwe.
Mountainview... Palo Alto Hdwe.
Newport Beach... Al Forgit Hdwe.
Norwalk... Coffman's Hdwe.
Oakland... C. Markus Hdwe.
Simon Hdwe. Co.
Palo Alto... Palo Alto Hdwe.
Pasadena... Pasadena Hdwe.
Sacramento...
Newbert Hdwe.
& Implement
San Bruno... C & S Rental & Sup.
San Diego...
Whitney's Dept. Stores
San Francisco...
Fredericksen Hdwe.
San Francisco, Hillsdale,
Bayfair, Valley Fair...
Macy's California
Santa Ana... Clark Dye Hdwe.
Stockton...
Dunlap Hdwe. & Appliance
Van Nuys... Murmak Hdwe., Inc.
The Tool Mart
West Los Angeles...
Munro's West L.A. Hdwe.
Potter's Hdwe.
Wilmington...
Wilmington Hdwe. Co.
All Diamond Gardner Retail
Stores Covering Northern Calif.
All May Co. Stores

COLORADO
Denver, Downtown, Cherry
Creek, Lakeside Stores...
Denver Dry Goods
Denver... Faiby Hdwe.
Ross Hdwe.
Englewood, A & A Trading Post
Englewood Hdwe. Co.
Littleton... Valore Hdwe.

CONNECTICUT
Danbury... The Heyman Hdwe. Co.
Stamford... Karp's Hdwe.
All Carlisle Hardware Stores

DELAWARE
Elsmere... H. H. Ulmer
Wilmington... Parklynn Hdwe.
Wilmington Hdwe.

DISTRICT OF COLUMBIA
Washington...
W. J. Canedy Hdwe.
All Peoples Hardware Stores

FLORIDA
Jacksonville...
Times Square Hdwe. Co.
Towers Hdwe. Co.
St. Petersburg...
Merrill Hdwe. Co.
Tampa...
Burt's Hdwe. & Builders Sup.
Tampa Hdwe. Co.
Vinson Paint & Hdwe.

GEORGIA
Atlanta... All King Hdwe. Stores
Bates Hdwe. Co.
Rich's, Inc.
Decatur... Smith Hdwe.
Marietta... Dupre's
Washington... Rees Seed & Sup.

HAWAII
Oahu...
Arakawa's Department Store
Kailua Hdwe.

IDAHO
All Coast-to-Coast Stores

ILLINOIS
Arlington Heights...
Bowen Hdwe. Co.
Belleville... Phillips Merc. Co.

Chicago... N. Turek & Son
Stebbins Hdwe. Co.
Decatur... Black and Co.
Irvin Hdwe.
East St. Louis...
Modern Home Hdwe.
Elmhurst... Soukup's Hdwe.
Morton Grove... Dempster Hdwe.
Oak Park... Walker Hdwe. Co.
Peoria... Shaheen Hdwe.
Springfield... Black & Company
Graves Hdwe.
All Ace Hdwe. Stores
All True-Value Stores

INDIANA
Evansville...
Kuester Hdwe. Centers
West Side Hdwe. Co.
Gary...
Hannah's True Value Hdwe.
John C. Kolarik Hdwe.
Indianapolis... Hedlund, Inc.
Al. Meyer Hdwe.
North Side Lumber &
Hdwe., Inc.
Pearson Hdwe. Co.
Star Hdwe. Co.
Vonnegut Hdwe. Co. Stores
South Bend... Harvey's Hdwe.
G. E. Meyer Hdwe.

KENTUCKY
Louisville... Clifton Hdwe.
Gish Hdwe.
H & S Hdwe. & Sup.
Sam Kohn & Sons
Schober Hdwe. Co.
St. Matthews Hdwe.
Lexington... Clark Hdwe. Co.
Smith Watkins Hdwe.

LOUISIANA
New Orleans... Harry's Hdwe.
Stauss & Haas
Shreveport... Buckelew Hdwe. Co.
King Hdwe. Co., Inc.

MAINE
Augusta... Nussey Hdwe. Co.
Portland... Dryco Hdwe. Co.

Weller Power Tools are Featured at These and Other Fine Stores

MARYLAND
Baltimore...
Demb Bros. Hdwe. & Paint
Govans Hdwe.—Heller's
National Sup. Co.
Wright Bros. Hdwe. &
Sup. Co.
All Hardware Fair Stores
Cambridge...
Farmers Sup. & Equip. Co.
Glen Burnie... Lipin's Hdwe.
Hagerstown... Startzman Hdwe.
Hillcrest Heights...
Canedy's Hdwe.
Takoma Park...
Center Hdwe., Inc.

MASSACHUSETTS
Boston... M. P. White Co.
Monson... Harry Thorin Co.
N. Woburn... Artlee Hdwe. Co.
Saxonville... State Lumber Co.
Southbridge... Perron & Co.
Williamansett...
Aubuchon Paint & Hdwe. Co.
All W. E. Aubuchon Co., Inc.
Stores
All Carlisle Hardware Stores

MICHIGAN
Bay City... Banks Hdwe. & Sup.
Goddeyne, Inc.
Dearborn... Nankin Hdwe.
Tela Warren Hdwe.
Detroit...
A. L. Damman Hdwe. &
Stores
J. L. Hudson Dept.
Stores Co.
Flint... Gilroy Hdwe.
Geo. W. Hubbard Hdwe.
Grand Rapids... Bulkema Hdwe.
Godwin Paint & Hdwe.
Plainfield Lumber & Hdwe.
Kalamazoo... Miller Lumber Co.
Lansing... Densteadts Hdwe.
Van Dervoort Hdwe.
Pontiac...
F. J. Poole Hdwe. Stores
Royal Oak... Maskill Hdwe.

MINNESOTA
Minneapolis...
Warner Hdwe. Stores
St. Paul... Warner Hdwe. Stores
All Coast-to-Coast Stores
All Gamble-Skogmo Stores
All S & Q Stores

MISSISSIPPI
Jackson...
Addikson Hdwe. Co., Inc.
Natchez... Feltus Bros. Hdwe. Co.
Vicksburg...
Mississippi Hdwe. Co.
O'Neill-McNamara Hdwe. Co.
Yazoo City... Planters Hdwe. Co.

MISSOURI
Rolla... Twitty Hdwe.
Springfield... Plaza Hdwe.
Twitty Hdwe.
St. Louis...
All "Central Hardware
Co Stores"
Hill Behan Lumber Co.

MONTANA
All Coast-to-Coast Stores

NEW HAMPSHIRE
Nashua... Osgood's
All W. E. Aubuchon Co.,
Inc. Stores

NEW JERSEY
Avenel...
Lincoln Hdwe. & Paint Co.
Camden... Reese & Whildin, Inc.
Haddon Heights...
Suburban Hdwe. Co.
Maplewood... Blanken Hdwe., Inc.
Newark... Fox Hdwe.
Perth Amboy... Milton J. Guttman
Union...
Townley Houseware & Hdwe.

NEW MEXICO
Albuquerque...
Blucher Lumber Co.
Doherty Lumber Co.

NEW YORK
Amsterdam...
John E. Larrabee Co.
Buffalo...
Hertel Hdwe. & Plumbing
Sup. Co.
P. C. Kern's Sons
Schuessler Hdwe.
Kingston... Herzog's
New York... Ace Hdwe. & Sup. Co.
Alco Hdwe. & Tool Co.
Alexanders Hdwe.
D & R Auslander Co.
Canal Hdwe. Co., Inc.
Central Hdwe. & Elec. Co.
Commuters Hdwe. Co., Inc.

Dick's Hdwe. Co.
Grand Central Hdwe. Co.
Halmor Hdwe. & Sup. Co.
Koral's Hdwe. Co.
Palmer Hdwe. Co.
Salmar Hdwe.
Whitehall Hdwe. Co.
Oriskany... State Hdwe. Co.
Pleasant Valley...
Elmer Nygren Hdwe.
Rochester... Alhart Electric Co.
East Avenue Hdwe. Co.
Schenectady... David Mahoney Co.
Wallace Armer
Syracuse...
Kady's & Cave Hdwe., Inc.
Scharfs
Utica... State Hdwe. Co.
Whitesboro... State Hdwe. Co.

NORTH CAROLINA
Asheville...
Citizens Hdwe. & Sup. Co.
Charlotte... The Center Hdwe. Co.
Myers Park Hdwe.
Durham...
M. E. H. Hardware Co., Inc.
Greensboro... McKnight Hdwe. Inc.
Raleigh...
Village Hdwe. & Sports
Store, Inc.
Winston-Salem...
Hugh Butler Hdwe.
Pleasants Hdwe.

OHIO
Chesterland...
Bloom Brothers
Chesterland Supply
Cincinnati...
Shillito's Hdwe. Dept.
Garage Store
Cleveland... Blank Hdwe.
Bloom Brothers Sup.
Columbus... Carter Hdwe. Co.
All Zettler Stores
All Cussins & Fearn Stores
Dayton... Tischer Hdwe.
East Cleveland... Joseph J. Eckert
C. W. Koenig Company
Euclid... C. W. Koenig Company
Lakewood...
Lakewood Hdwe. & Elect.
Louisville... J. B. Metzger Co.
Newark...
All Moore Stores
North Canton... R. D. Frye Hdwe.
Toledo... Hampe Hdwe.
McElheney Hdwe.

OKLAHOMA
Oklahoma Tire & Supply—
"ALL OTASCO Stores"

OREGON
Eugene... Plants Inc.
Portland... Meier & Frank Co.
Stark-Davis Stores
Winks Hdwe.
Salem... Allen Hdwe. Stores
Meier & Frank Co.
All Coast-to-Coast Stores

PENNSYLVANIA
Altoona... Helsel Hdwe.
Bryn Mawr... Bryn Mawr Hdwe.
Carlisle... Carlisle Hdwe.
Chester... Stress Bros.
Greensburg... Bortz Hdwe. Co.
Harrisburg... Pomeroy's
Jenkintown... J. Frank Fleck Co.
Johnstown... Swank's
Monroeville...
Whitehead Hdwe. Co., Inc.
Philadelphia... Murta Appleton Co.
E. J. Driver Hdwe., Inc.
Geo. T. Miller Hdwe.
National Hdwe. Co.
C. L. Presser Co.
Red Lion Hdwe. & Sup. Co.
S & H Hdwe. & Sup. Co.
Pittsburgh... Fort Pitt Hdwe. Co.
Regent Variety Store
Pottstown... Van Buskirk & Bro.
Reading... J. W. Leinbach Hdwe.
Winters Hdwe. Co.
Scranton... Thos. F. Leonard Co.
Willow Grove... Eskin Hdwe. Co.

RHODE ISLAND
Bristol... Hope Hdwe. Co.
Westerly...
C. W. Willard Hdwe. Co.

SOUTH CAROLINA
Charleston... Nicoll's Hdwe. Co.
Columbia... Hiller Hdwe. Co.
Ruff Hdwe. Co.
Greenville...
Cheatham-Greenville
Hdwe. Co.

SOUTH DAKOTA
Belle Fourche... Pace Hdwe.

TENNESSEE
Chattanooga...
Ault Hdwe. & Appliance Co.
Miller Bros. Co.
Fountain City...
Fountain City Hdwe.
Knoxville...
Calloway-Farmer Hdwe.
Memphis...
General Hdwe. & Sup. Co.
Wallace E. Johnson Hdwe.
Co., Inc.
Whitten Bros. Hdwe. Co.
Nashville... Crow Hdwe. Co.
Little & Steele Hdwe. Co.,
Inc.

TEXAS
Austin... Everett Hdwe.
Vaught's Stores
Beaumont... Royal Auto Stores
Stagg Sup. Co.
Corpus Christi... Alameda Hdwe.
Dallas... C & S Hdwe. Stores
Reed Hdwe.
Walnut Hill Hdwe. Co.
El Paso... Lander Lumber Co.
Texas Hdwe. Co.
Fort Worth... Leonard's
Ridgela Hdwe.
Houston... Foley's
David's Hdwe. Co.
Patterson Hdwe.
Wagner Hdwe. Stores
San Antonio... Joske's of Texas
McLaughlin Hdwe. Stores
Scrivener's, Inc.
Waco... Cogdell's

UTAH
Salt Lake City...
Ketchum Builders Sup.
Pehrson Hdwe. &
Appliance Co.
Scott Hdwe. Center

VERMONT
All W. E. Aubuchon Co.,
Inc. Stores

VIRGINIA
Danville...
Virginia Hdwe. & Mfg. Co.
Lynchburg... Chestnut Hill Hdwe.
Norfolk... Lum's Hdwe. Corp.
Reynolds Hdwe. Co., Inc.
Portsmouth...
Standard Hdwe. Corp.
Richmond...
A. L. Lorraine Hdwe. Co.
Westwood Hdwe.
Roanoke...
Northwest Hdwe. Co. Stores

WASHINGTON
Auburn... Cavanaugh Hdwe.
Bellevue... Sparling Hdwe., Inc.
Bremerton... Todd Hdwe.
Marysville... Jack Barlett's Hdwe.
Seattle... Airport Hdwe.
Radio Products Sales
Tacoma... Washington Sport Shop
Vancouver... Gain Auto Supply
All Coast-to-Coast Stores

WEST VIRGINIA
Huntington...
Gilbert & Company Hdwe.
Parkersburg... Ken's Hdwe.
South Charleston...
Town & Country Hdwe.
Wheeling... H. Kalbitzer & Son

WISCONSIN
Hales Corners... Welch's
Milwaukee... Hilgendorf Hdwe.
National Hdwe. & Sup.
Schuster Dept. Stores
Sheboygan... H. C. Prange
West Allis... Weltzer Bros., Inc.

STOP WINDOW DRAFTS

do-it-yourself
in just minutes

with
Mortite
**WINDOW
WEATHERSTRIP**

everything you need...
no tacks or tools
required

only
29¢



JUNIOR BOX 29¢, gives you enough for a single window. For 5 to 6 windows, ask for the **BARGAIN BOX** at only \$1.39.

MORTITE is the unique "FINGERTIP" weatherstrip. Simply press into place—it adheres to any clean, dry surface. Use it around drafty windows—Government reports show cracks and crevices are responsible for up to 25% heat loss in the average home. Use it around uneven screens to keep insects out. Use it as a sealer, gasket, caulker, plugger-upper... there are hundreds of uses around the home, farm, shop, cottage.

- Works equally well inside or out.
- Never cracks, chips or peels.
- Can be painted over.
- Stays soft—unrolls like a ribbon.
- Easily removed—leaves no marks.

LOOK FOR "FINGERTIP" MORTITE
AT YOUR NEARBY HARDWARE
OR BUILDING SUPPLY STORE.

Seals cold out! Seals heat in!



Another Home-Saver Product by

Mortell
COMPANY
KANKAKEE, ILLINOIS

A Thickness Sander for Home Shops

[Continued from page 168]

on its bearings. (If no lathe is available, the drum can be turned entirely in position. Take light cuts and be sure the turning chisel is well supported on a broad block of the proper height placed on the table.)

Using a table saw set at a five-degree tilt, carefully pass the drum over it several times to make the groove for the retaining wedge. Cut the tapered wedge from a strip of maple and drill four countersunk holes for $\frac{3}{4}$ " #5 flathead screws.

Mounting the shaft. This is a job that should be done with care; the drum must be parallel to the table. Screw shim blocks to the rails of the table support. Shims shown are for use with the type of shaft bearing illustrated.

Bolt the bearings in position with long $\frac{1}{2}$ " machine bolts. The bolts should pass through the shim block and the rail, so their length will be determined by the height of the shim.

Lock a collar on the shaft on the outer side of each bearing to keep the drum from sliding from side to side. Mount the pulley on the shaft so that its inner step overhangs the rail. Then install the motor beneath it in a position that will align the motor pulley with the shaft pulley. If all dimensions have been followed, a 45" V belt will raise the hinged motor enough to maintain belt tension.

Assemble the $\frac{1}{2}$ "-plywood belt guard around the pulleys, cut the hardboard cover to fit, then locate and drill a 1" hole in the cover for the protruding end of the shaft. Fit an arbor to the shaft end for mounting a contour sander, wire brush, buffing wheels or other accessories.

On the opposite end of the sander shaft, mount a sanding disk. The dimensions given for the disk-sander table are for a 12" disk. If you use a 10" size, simply make the opening in the table smaller to fit around it with $\frac{1}{8}$ " clearance at front and sides. Drill $\frac{1}{4}$ " clearance holes for two wing bolts and install tee-nuts behind the holes on the inside of the rail. This makes the table quickly removable for changing paper on the disk.

Protecting the wood surfaces. To prevent instability due to moisture in the air, apply several coats of clear wood sealer. Cover areas you can't see, too, such as the underside of the table and

A Thickness Sander for Home Shops


shelf. Sand the hardboard table surface lightly with fine sandpaper and apply sealer. Sand again and repeat until the surface feels smooth and hard. Follow this with paste wax rubbed to a polish.

The first job on the machine should be truing the sanding drum. Tape medium sandpaper to a flat board and move it beneath the drum while it is rotated under power. Apply sealer to the drum and sand it smooth. Insert one side edge of a standard 9"-by-12" sheet of sandpaper in the tapered groove, wrap it around the drum and insert the other edge. Press the retaining wedge in the groove over both edges of the paper and tighten the four screws. Your thickness sander is ready.

As with all sanding operations, you get best results with a light cut and slow feed. Three-step pulleys on the sander and motor shafts provide speeds of 860, 1,725 and 3,450 with a 1,725-r.p.m. motor. The middle speed is good for most jobs, but slow speed is recommended when using coarse paper, high speed for fine finishing. A 1/2-hp. motor will provide all the power you need, but if you have a 1/3- or 1/4-hp. motor available, try it for size. It may have all the push you need for the jobs you want to do.



MOBILE MILKER. Here's a milking machine that goes to the cows instead of having them driven to it. Adapted in Sweden from a model used in Holland and Germany, it makes the rounds of eight farms, serving 65 cows daily. It is built on a Volvo chassis, is driven by a 120-hp. V-8. Its tanks hold 160 gallons.



STOP DOOR DRAFTS

do-it-yourself
in just minutes
with

FOAMFLEX[®] DOOR WEATHERSTRIP

everything you need
to do the job . . .
even the nails

only
\$229

Famous FOAMFLEX consists of closed-cell, positively non-absorbent vinyl foam permanently bonded to clear wood moulding. New, exclusive "offset" design of foam edge provides perfect 2-WAY airtight seal . . . *against the door and against the door-stop!* With only hammer and saw, anyone can install in only 10 minutes. Package contains more than enough to weatherstrip the average door—two 7' lengths, one 3' length, instruction sheet, package of nails.

Patent Pending

- Stops wind, rain, snow.
- Silences closing doors.
- Can be painted without hardening.
- Stays flexible even at 50° below zero.
- Fits tight, even against warped surfaces.

LOOK FOR THIS DISPLAY CARTON AT YOUR FAVORITE
HARDWARE OR BLDG. SUPPLY STORE.

Seals cold out! Seals heat in!

Another Home-Saver Product by

Mortell
COMPANY
KANKAKEE, ILLINOIS

YOUR SAW



Cat. No. 34-004
Delta Homecraft
9" Tilting Arbor Circular Saw equipped
with Extension Wings and Steel Stand.

**OWN THE FINEST
RIGHT FROM THE START**

—AND AT A BIG

\$21⁰⁰ Saving
(Slightly higher in the West)

IS WORTH \$21⁰⁰

WHEN YOU TRADE IT ON THE FAMOUS DELTA 9" CIRCULAR SAW

Here's a once-in-a-lifetime opportunity to trade slow, old fashioned hand sawing for fast, easy, accurate cutting—and start your home workshop with the best!

You can get a liberal trade-in allowance for your old saw (*any kind, regardless of condition*) toward the purchase of a new Delta 9" Tilting Arbor Circular Saw.

You'll be proud to own this saw, with its New Advanced Design styling, clean lines and handsome mottled grey finish. And you'll like the

ruggedness, built-in precision and safety features you get—the kind of quality you find only in Delta Industrial Tools. But, best of all, you'll enjoy the satisfaction of owning the finest of its kind—a power tool backed by over 30 years of engineering skill and experience. Why be satisfied with anything less?

Hurry—offer limited—see your Delta Dealer (he's listed under "TOOLS" in the Yellow Pages) or visit your leading Department, Hardware or Building Supply Store.

FREE! New Deltacraft Library Catalog

Lists titles and contents of every volume in the famous Deltacraft Library—one source for all the power tool information you'll want to have in your workshop. For your FREE copy, write: Rockwell Manufacturing Company, Delta Power Tool Division, 504K N. Lexington Ave., Pittsburgh 8, Pa.

DELTA POWER TOOLS

another fine product by

ROCKWELL



MILD LITTLE CIGARS

NO NEED
TO INHALE
TO ENJOY THEM



35c

Humidor pack
of 20

TREND

- Long enough for complete satisfaction . . . short enough to enjoy any time.
- 100% cigar tobaccos—with uniform tobacco wrapper.
- No need to inhale to enjoy them.

Try them today . . . the milder little cigars in the modern size. Carton includes free cigar holder.



Tipt

New Filter Tip Little Cigar

40c Humidor Pack of 20

Filter-tip protection . . . true cigar flavor . . . convenient modern size.

STEPHANO BROTHERS
(Cigar Division) Phila. 7, Pa.

PIONEER IN MODERN LITTLE CIGARS

Shop-Use Report: the New Saw Smith

[Continued from page 218]

return it to starting position and reset the fence at the rear of the table. Finally, you butt the work against the fence again (with the blade in the kerf), and make another pass to pick up the travel gained.

With Saw Smith, the fence is always at the rear of the table. You slide the whole assembly to start position, lock it there and draw the blade forward. Then you release the locking handles and move everything back as far as it will go—saw, table, fence and work. Another lock-down and pull on the saw and you have your maximum crosscut fast and simply.

On another score the sliding table presents a problem. If you don't reposition it exactly right for miter cuts you'll mar its surface quickly with a lot of kerfs. The solution is to index the machine base so the table can always be returned and locked in the same spot.

Easy adjustment. How about construction and adjustments? First I checked the radial arm. Was it accurately parallel to the table top? I clamped a strip of wood to the arbor in place of the saw blade. Then I lowered the carriage so the end of the wood just touched the table. By swinging the arm around and moving the carriage back and forth I was able to see if they contacted each other at all points. They didn't. But by making an easy table adjustment with four cams, I brought the parts completely parallel.

Next I cut a 10" long dado $\frac{3}{8}$ " deep in a piece of $\frac{3}{4}$ " plywood. Calipers showed me that it didn't vary more than $\frac{1}{64}$ ". I repeated the cut, this time bearing down on the carriage hard. Still the dado was only $\frac{1}{16}$ " lower at the tail end of the cut.

Saw Smith's radial-arm movement was accurately indexed. After I had adjusted it for completely square crosscutting, I found the 45-degree left and right miter settings right on the button. Would they stay that way after numerous other operations—tilting the head or swinging the arm, for example?

One of my first tests, then, was to cut a shallow groove in a board at zero position, and two others at the 45-degree points. At the very end of my testing program I placed the board in exactly the same position and repeated the cuts. The blade tracked the grooves accurately.



Now! For the man who can't afford battery failure!

Auto-Lite sta-ful with Power Bond is the battery for the man who *must* be there, who can't afford to trifle with time, who just can't afford battery failure. Power Bond, an exclusive Auto-Lite development, eliminates plate-destroying vibration, a major cause of battery failure.

Auto-Lite sta-ful with Power Bond needs

water only 3 times a year in normal car use because it has the sta-ful extra liquid reserve above the plates. Power Bond is so good that it is registered in your name at the factory. It is the leader of a top-quality, top-value family of Auto-Lite Batteries made for both the new 12- and the older 6-volt automotive electrical systems.



HERE'S THE TOUGHEST TEST ever made on batteries! Both Auto-Lite sta-ful with Power Bond and ordinary batteries were clamped to this vibrating machine and tested for power loss at specific time intervals. See the amazing results . . .



ORDINARY BATTERY



POWER BOND

Ordinary battery plates (left) have lost vital power-producing materials and failed after only 55 hours of vibration testing. But the amazing Auto-Lite sta-ful with Power Bond (right) shows no damage at all after 1000 hours in the same test. Plates are still intact and delivering full starting power!

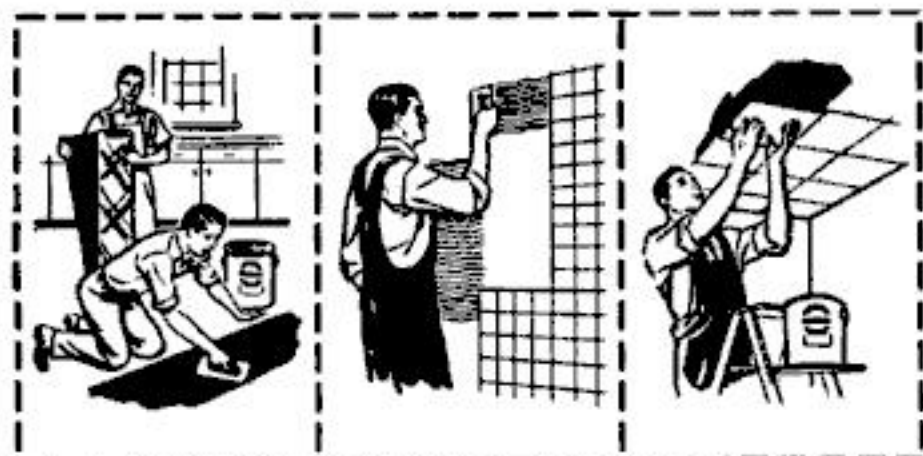


AUTO-LITE® sta-ful® with POWER BOND®

DRY CHARGED . . . FRESH WHEN YOU BUY! FOR MOST 12-VOLT SYSTEMS

Listen to NBC "NEWS ON THE HOUR" brought to you by Auto-Lite, Monday through Friday, 7 a.m. to 11 p.m.

Now—you can install



floors...walls...and ceilings
just like professionals

with Flintkote's
Builders
Adhesives!



You can do home repair or remodeling jobs easily . . . and quickly when you work with Flintkote's Atlas[†] Builders Adhesives.

Choose from 12 different Builders Adhesive Products especially designed for applying linoleum, cork, rubber, asphalt, flexible vinyl, wallboard, hardboard and plastic materials. Use Latex Cement Patch for most concrete repairs.

All work easy! All bond fast! A partial list of F-A Builders Adhesives includes:

- Linoleum Paste
- Waterproof Adhesive
- Acoustical Tile and Wallboard Cement
- Cove Base Cement
- Wall Tile Cement
- Tileboard Cement
- Asphalt Tile Cement
- Rubber and Flexible Vinyl Tile Adhesive
- Quick Setting Tile Adhesive
- Latex Cement Patch

For complete information on the full line of Atlas Builders Adhesives, see your hardware or building products dealer, or write The Flintkote Company, 30 Rockefeller Plaza, New York 20, N. Y.

[†]A trademark of The Flintkote Company

America's Broadest Line of Building Products



Olds Cuts Chrome and Horsepower

[Continued from page 125]

there's less wear on it. It's quieter, too.

All this is in emulation of Pontiac, which has been offering economy engines for these several years.

The engines in the other two series, the Super 88 and 98, remain substantially unchanged except for an optional 300 horsepower in the Super in place of the regular 315 hp., and substitution of a two-barrel carburetor for 1959's four-barrel. Axle ratios are down on both these series.

By actual measurement, taken halfway between the front-seat lip and the point where the transmission meets the toe-board, the transmission hump in the new Olds is an inch lower and two inches narrower—5½ by 14 inches.

The two-stage headlight dimmer, an option on all General Motors cars, is made by the company's Guide Lamp Division and is called the Guide-Matic. It's a sophistication of the old Autronic-Eye. When the lights of an oncoming car energize the system's photoelectric cell, relays switch all four headlights to low beam. A half-second later, the inboard lights are quenched entirely. GM calls this development its Safety Salute.

A third less parking effort is required for manual steering. That's due to the overall ratio, now at 33.2:1 compared with the former 29.4.

The styling of the 1960 Olds is subdued, as though it had been cut to the quick by a slighting remark about its spangles. The 1958 model year was Olds' high-water mark in sheer gaudiness. The 1959 car was in better taste. Now it's positively demure.

The Olds is actually a bit higher as well as shorter, but in the words of the sketch artists, "it 'reads' lower and longer." In response to some backtalk from owners on the difficulty of parking 18½ feet of automobile, the two front-end corners are swept back. This reduces the distance from the front wheels to the bumper by one and two-tenths inches. It's a mite easier to park.

The rear overhangs are still prodigious—five full feet for the 98 series and only an inch less for the 88 and Super 88. But that's par for the course. Most of the Olds' competitors stick out that far in back, too.—*Devon Francis.*

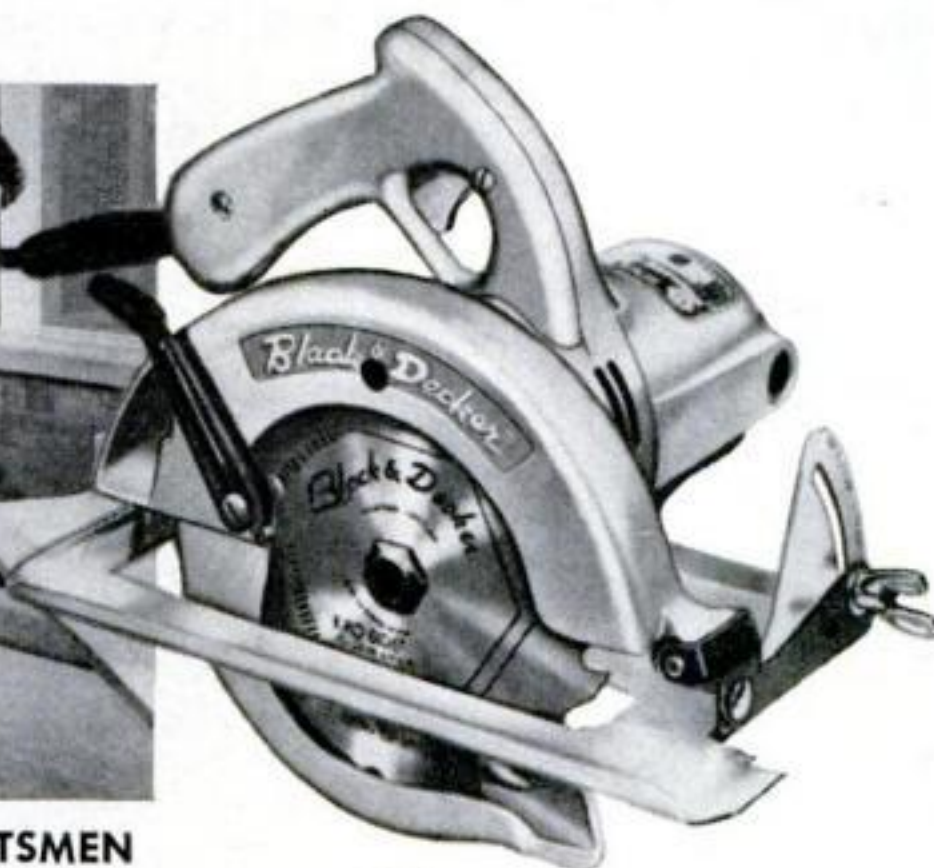
For pro or amateur . . . TOP POWER FOR THE JOB!



FOR HOME CRAFTSMEN



FOR THE PROFESSIONAL



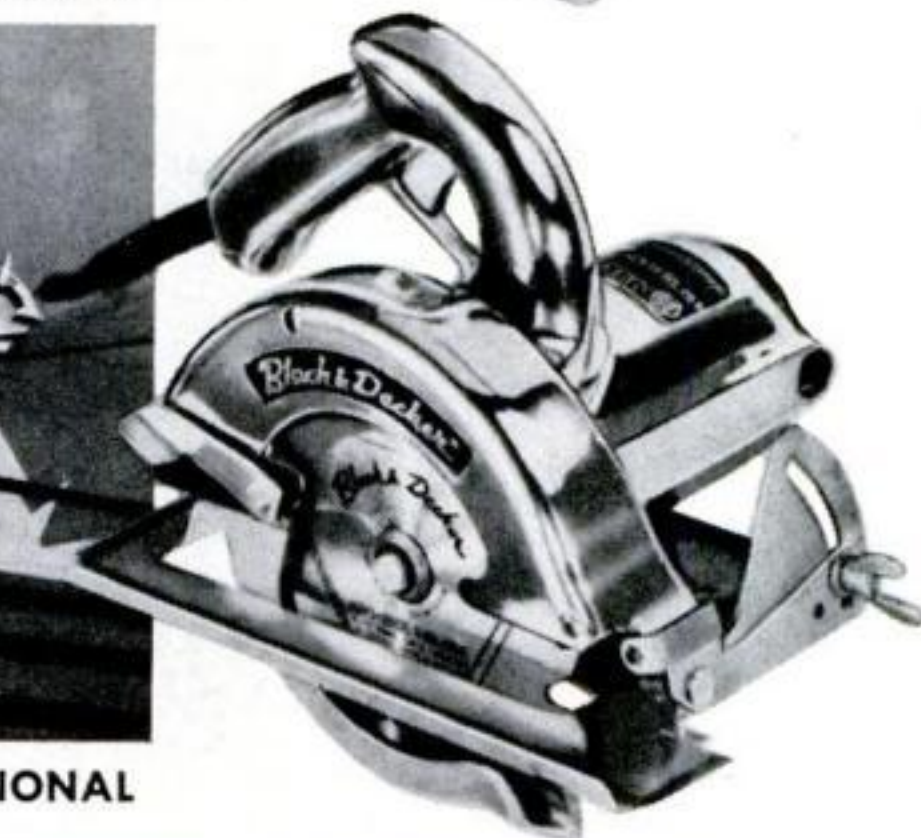
New B&D 6 1/2" Utility Saw

SPECIAL INTRODUCTORY PRICE

\$45⁹⁵

After December 25, 1959, \$49.95

Quality at low price! With new sawdust ejector and calibrated depth adjustment *plus* all the features of heavy-duty models! Cuts to 2 3/32" at 90°, 1 13/16" at 45°. Perfect model for small budgets, now specially priced for limited time!



Job-tested B&D 6 1/2" H. D. Saw

ONLY **\$69⁵⁰**

Top quality in a lightweight, heavy-duty saw . . . for use portably or in a saw table. Provides power to spare for any sawing job; cuts through a 2 x 4 at 45°. Cuts to 2 5/32" at 90°, 1 7/8" at 45°.



Black & Decker®

Towson 4, Md.

"TOP 10" SAWS

On the job at America's top ten construction projects



7 1/4" HEAVY-DUTY SAW



8" HEAVY-DUTY SAW



8 1/4" HEAVY-DUTY SAW



9 1/4" HEAVY-DUTY SAW

BIG

WORKBENCH CONTEST GET YOUR ENTRY IN

GIVEN AWAY FREE

25 Grand Prizes of the POPULAR SCIENCE Split-Level Home Workbench—a new and revolutionary workbench design—the dream of every workshop owner!

25 Complete 12 Volume sets of POPULAR SCIENCE Do-It-Yourself Encyclopedias

50 Built-in Space Saver Books

50 One-Year Subscriptions to POPULAR SCIENCE

Describe your favorite workbench activity, completing the statement, "I would like to win the POPULAR SCIENCE Split-Level Home Workbench because....." in 50 words or less.

STILL TIME TO WIN—EASY TO ENTER

See your local dealer in a partial listing in September POPULAR SCIENCE and on this page.

If your local Building Supply or Hardware Dealer is not listed . . . mail your name and address to POPULAR SCIENCE, Dept. 1106, 355 Lexington Avenue, New York, New York, for your entry blank.

REMEMBER, all entries must be postmarked by midnight Oct. 31st, 1959. In case of tie, duplicate prizes will be awarded. All entries will be judged by POPULAR SCIENCE editors.

Partial List of Dealers Joining 5th Annual Home Improvement Program

Millwork-Glass Building Supplies
P. O. Box 691
Juneau, Alaska

O'Malley Lumber Co.
4th Avenue & Madison
Phoenix, Arizona

Atlantic Lumber Co.
6327 South Atlantic Blvd.
Bell, California

Home Lumber Co.
300 Broadway
Chula Vista, Calif.

Sylvan Lumber Co.
7200 Auburn Blvd.
Citrus Heights, Calif.

A. M. Dary Co., Inc.
3605 E. Anaheim St.
Long Beach, Calif.

Tynan Lumber Co.
P. O. Box 268
Monterey, Calif.

Frank G. Noyes Co.
929 Third Street
Napa, Calif.

Burritt Building Materials, Inc.
415 Knowlton Street
Bridgeport, Conn.

Armstrong & Dobbs, Inc.
315 Oconee Street
Athens, Georgia

Boise Building Supply
6909 Fairview Avenue
Boise, Idaho

Boise Payette Building Center
220 South 3rd
Boise, Idaho

Irrigators Lumber Co., Inc.
Albany at Seventh Ave.
P. O. Box 99
Caldwell, Idaho

Boise Payette Building Center
Box 518
Emmett, Idaho

Boise Payette Building Center
Box 66
Hazelton, Idaho

Boise Payette Building Center
Box 368
Idaho Falls, Idaho

Bestway Building Center
Box 426
Lewiston, Idaho

Boise Payette Building Center
Box 517
Montpelier, Idaho

Boise Payette Building Center
Box 469
Nampa, Idaho

Boise Payette Building Center
Box 188
Rexburg, Idaho

Mickelsen's
142 West 1st North
Rexburg, Idaho

Boise Payette Building Center
Box 36
St. Anthony, Idaho

Boise Payette Building Center
Box 1077
Twin Falls, Idaho

Builder's Supply Co.
1308-14 Jefferson Ave.
Lawrenceville, Ill.

Thompson Lumber Co.
612 South Neil Street
Champaign, Illinois

Joseph Lumber Co.
2001 No. Narragansett
Chicago 39, Illinois

Vermilion Lumber Co.
615 North Jackson Street
Danville, Illinois

Haynes Milling Co.
Lumber Department
Portland, Indiana

Home Lumber Co.
Franklin & Grant Avenue
Junction City, Kansas
Big Six Lumber Yard
6601 East Kellogg
Wichita, Kansas

The Jenkins-Essex Co.
142 East Dixie Avenue
Elizabethtown, Ky.

The Wm. D. Bowers Lumber Co.
231 East Patrick St.
Frederick, Md.

Allegan Lumber Co.
Allegan, Michigan

Wood Lumber Co.
Bangor, Michigan

Beverly Lumber Co.
1101 Pipestone
Benton Harbor, Mich.

Decatur Wood Products
Decatur, Michigan

Hutchins Lumber & Supply Co.
Douglas, Michigan

Stegath Lumber Co.
Box 302
Escanaba, Mich.

Johnson-Howard Lumber Co.
510 North Edwards
Kalamazoo, Michigan

Millers Lumber Co.
1919 Factory St.
Kalamazoo, Michigan

Sportel Lumber Co.
424 East Michigan
Kalamazoo, Michigan

The Renier Company, Inc.
1600 Southfield
Lincoln Park, Michigan

Mt. Clemens Lumber Co.
P. O. Box 672
1010 S. Gratiot
Mt. Clemens, Mich.

Schrader Lumber & Coal Co.
125 North Whittaker St.
New Buffalo, Michigan

Niles Lumber Co.
Niles, Michigan

Portage Lumber Co.
Portage, Michigan

Plainwell Lumber Co.
Plainwell, Michigan

Pullman Supply Co.
Pullman, Michigan

Kler's Custom Woodwork
28220 Harper Avenue
St. Clair Shores, Mich.

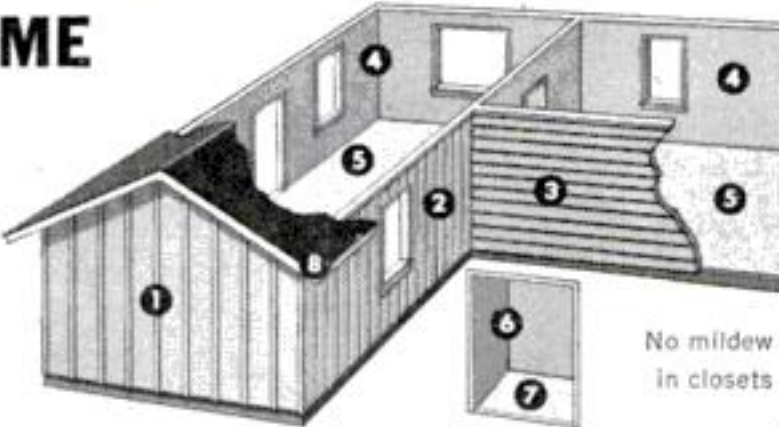
Kauffman Lumber & Coal Co.
Schoolcraft, Michigan

Partial List of Dealers Joining 5th Annual Home Improvement Program

Michigan Shore Lumber & Supply Co. South Haven & Coloma South Haven, Michigan Walter Winkel Lumber Co. Dunkley Avenue South Haven, Michigan Warren City Lumber Co. 4027 East 9 Mile Rd. Warren, Michigan Oxboro Lumber Company 9421 Lyndale Ave., South Bloomington, Minn. S. Hage Lumber Co. Madelia, Minn. Acme Stone & Lumber Co. 3200 France Avenue, South Minneapolis, Minn. N. C. Bennett Lumber Co. 2825 Fifth Avenue, South Minneapolis, Minn. Bloom Dale Lumber Inc. 10508 France Avenue, South Minneapolis, Minn. Crystal Lumber Co. 5353 Lakeland Avenue Minneapolis, Minn. DeLong Lumber Co., Inc. 4360 North Lyndale Minneapolis, Minn. Hiawatha Lumber Co. 3233 East Fortieth St. Minneapolis, Minn. Southtown Building Materials 8436 Pillsbury Avenue Minneapolis, Minn. Westlund-Westerberg Lumber Co. 3105 Hiawatha Avenue Minneapolis, Minn. O. P. Foss Lumber Co. 14 North 7th Moorhead, Minn. Howard Lumber Co. 4719 42nd Avenue, No. Robbinsdale, Minn. Johnson Cashway Lumber Co. 1820 R Street Lincoln, Nebraska Sailor Lumber Co. 164 W. Front Street Stater, Mo. Comfort Coal-Lumber Co. 130 Passaic Street Hackensack, N. J.	General Lumber Co. of N. J. 204 Clinton Street Hoboken, N. J. Phillipsburg Supply Co. 33 Sitgreaves Street Phillipsburg, N. J. Davidson & Case Lumber Co. 320 South Bickford El Reno, Oklahoma Pantzer Lumber Co. Sheboygan, Wisconsin Scott Lumber Co. 1301 East 10th St. Amarillo, Texas Foxworth-Galbraith Lumber Co. Box 1115-301 E. 7th Street Dumas, Tex. Menefee Lumber Co. 5506 Bellaire Blvd. Houston, Tex. Charles L. Lenau Lumber Co. P. O. Box 98 Muleshoe, Tex. Alamo Heights Lumber Co. 5939-41 Broadway San Antonio, Tex. Tri-State Building Center 116 North Main Bountiful, Utah Tri-State Building Center Box 128 Murray, Utah Tri-State Building Center 1164 East 21st Street Salt Lake City, Utah Tri-State Building Center Box 266 Tremonton, Utah Peninsula Supply Co. 3404 Virginia Avenue Newport News, Virginia Bestway Building Center Box 174 Kennewick, Washington McEvoy-Rogers Lumber Co., Inc. 319 Kirkland Ave. Kirkland, Wash. Bestway Building Center Box 37 Moses Lake, Wash. Bestway Building Center Box 266 Naches, Wash.	Bestway Building Center Box 529 Pasco, Wash. Bestway Building Center Quincy, Wash. Bestway Building Center Box 2148 Spokane, Wash. North Side Building Supply E. 707 Francis Ave. Spokane, Wash. Bestway Building Center South 6th Street Sunnyside, Wash. Brookdale Lumber Co. 13602 Pacific Avenue Tacoma, Wash. Bestway Building Center Box 266 Yakima, Wash. Butler Lumber Co. 4539 N. 124th St. Butler, Wisconsin Bliffert Lumber & Fuel 6826 South 13th Street South Milwaukee, Wis. Wilbur Lumber Co. 7919 W. National Ave. West Allis, Wis. Peterson Building Supply Co. 4777 8th Street, South Wisconsin Rapids, Wis. Boise Payette Building Center Box 436 Casper, Wyoming Casper Lumber, Inc. 404 E. Railroad Ave. Casper, Wyoming Boise Payette Building Center Box 377 Cheyenne, Wyoming Tri-State Building Center Box 16 Rawlins, Wyoming Tri-State Building Center Box 959 Rock Springs, Wyoming J. R. Rodgers Ball Planing Mill 60 Bayfield St. Barrie, Ontario
---	--	---

8 WAYS TO REDUCE COSTS AND INCREASE QUALITY IN BUILDING YOUR NEW HOME

For certain applications, the lowest-cost materials you can use are the highest quality products in their field. This is true of Homasote products—by their very nature and by their wide variety of sizes, forms and thicknesses. Here are some of the savings possible—compared with other standard building materials—on a 3-bedroom house with 1200 square feet of exterior wall surface...



REDUCE YOUR COSTS BY \$515 TO \$1712	1 Homasote Board-and-Batten	2 Homasote Grooved Vertical Siding	3 Homasote 12" Siding
	\$220 to \$1092	\$175 to \$1048	\$110 to \$ 983
4 Homasote Interior Walls	297 to 480	297 to 480	297 to 480
5 Homasote Sub-Flooring	34 to 40	34 to 40	34 to 40
6 Closet Walls	29 to 46	29 to 46	29 to 46
7 Closet Floors	11 to 14	11 to 14	11 to 14
8 Facia and Rake Molds	34 to 40	34 to 40	34 to 40
	\$625 to \$1712	\$580 to \$1668	\$515 to \$1603

Further savings occur, because Homasote methods also reduce application costs. FREE—HOMASOTE'S COST-REDUCTION ANALYSIS. Send us the plan for your new home—without cost or obligation. We will show you just how these savings can be effected—in your area—on your particular house. Your plan will be treated confidentially and returned to you. Or—for further details—send 10¢ for the 72-page Homasote Handbook. Remember—Homasote products increase the quality, comfort and life of your home—as well as reducing the original cost. Kindly address Dept. K-5.

HOMASOTE COMPANY
TRENTON 3, NEW JERSEY
Homasote of Canada, Ltd., 224 Merton Street, Toronto 12, Ontario



TAXI ENGINES RUN 200,000 MILES . . . AND SO CAN YOURS!



Do as fleet owners do—replace key parts and get like-new pep and power!

Your car engine is *not* worn out at 40,000 or 50,000 or 60,000 miles. Take a tip from the experts who own and run huge fleets of cars and trucks. Overhaul the engine, replace key parts such as bearings and rings . . . and get back all the pep and power of a brand-new car!

SYMPTOMS OF BEARING WEAR

Your car will tell you when it needs new engine bearings. Is it sluggish or slow; does it miss, knock or ping? Is your gas mileage low; do you need oil *again*? Are spark plugs fouled with sludgy black oil and carbon? Then it's time for an overhaul—and new Federal-Mogul bearings.

FOR AN "OVERHAUL", BEARINGS

You're wasting money on any overhaul that doesn't include new engine bearings. Parts account for the smaller portion of the cost, so it pays to do the job *right* the first time. Even new piston rings can't control the 25-times normal oil throw-off from worn engine bearings.

FEDERAL-MOGUL MEANS BEARINGS

Bearings are the heart of your engine. Yet when you need main, con rod or camshaft bearings,

it costs no more to use the best—Federal-Mogul Engine Bearings. Ask your mechanic . . . he knows and trusts Federal-Mogul quality!



FEDERAL-MOGUL SERVICE

Division of Federal-Mogul-Bower Bearings, Inc. • Detroit 13, Mich.



Strange New Ship Hauls Cooking Gas

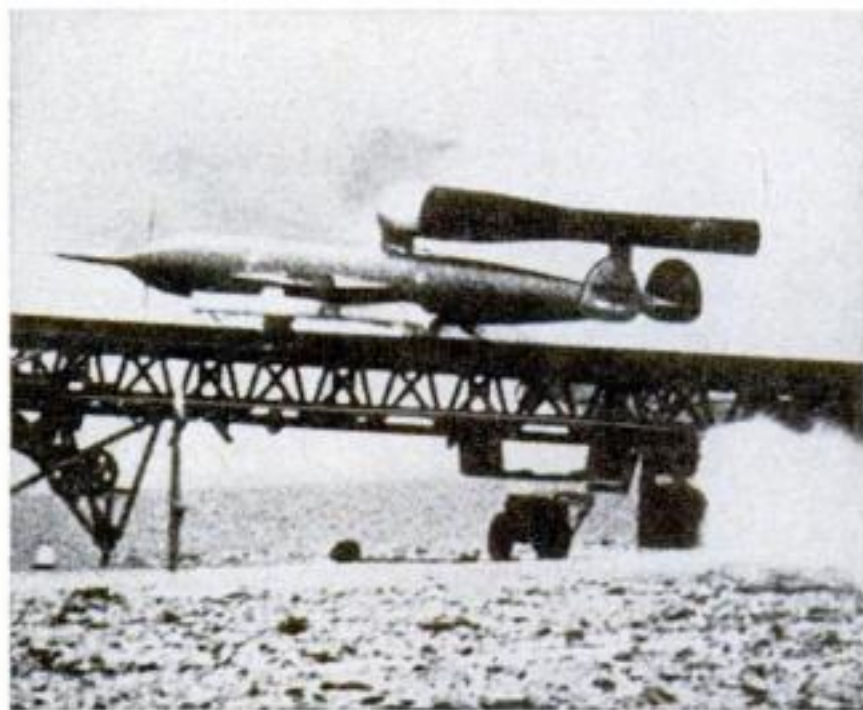
[Continued from page 79]

lightning damage, but even if waste gas were ignited at the vent, the flame could be snuffed by closing the vent briefly.)

The Pioneer docked in England uneventfully and on schedule. Then another tough operation began: Discharging its chilly cargo into the lines of the North Thames Gas Board on the Thames River near London.

Next: the supertanker. When you know how to do it, transporting liquefied natural gas is actually safer than shipping gasoline or fuel oil. When spilled, methane doesn't spread as fast as either of these. It's lighter, and its vapor rises and dissipates, rather than collecting dangerously in low places. Its ignition temperature is twice as high as that of regular gasoline, and burning requires a rich five-percent mixture (a 1½-percent mix of gasoline vapor and air burns).

The lessons learned from the pilot ship are to be used in building ships with 10 times its capacity. Already John Murphy has bought up 80,000 linear feet of balsa for the first methane supertanker. It will be twice as long, twice as wide, and have three times as many tanks as the Pioneer. Right now, Constock officials are busy developing markets in many parts of the world and negotiating for natural gas that would otherwise be burned as waste.



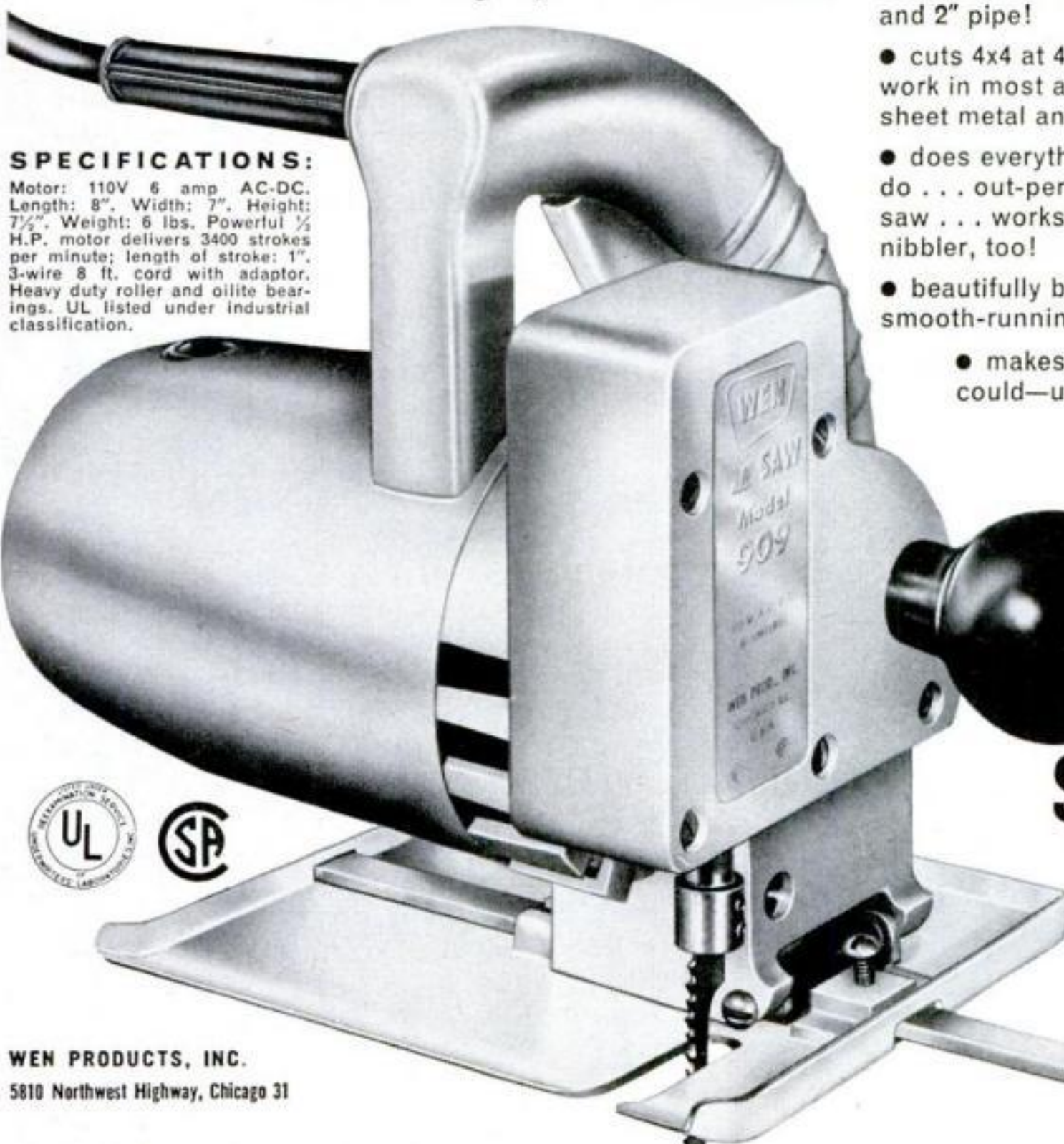
COASTAL-DEFENSE ROBOT.

Here's a new radio-controlled missile recently installed to guard Sweden's coast. The 18-foot, 1,300-pound projectile, shown on a rocket sledge astride its 20-foot runway, has a range of 160 miles, travels at 300 m.p.h. and carries a parachute.

cuts 4 x 4 at 45°... 6" log... fine scroll work... complete safety

1/2HP **WEN** SOUPED-UP SABRE SAW

AMAZING—First and only portable electric saw to give you all these features!



SPECIFICATIONS:

Motor: 110V 6 amp AC-DC. Length: 8". Width: 7". Height: 7 1/2". Weight: 6 lbs. Powerful 1/2 H.P. motor delivers 3400 strokes per minute; length of stroke: 1". 3-wire 8 ft. cord with adaptor. Heavy duty roller and oilite bearings. UL listed under industrial classification.

- cuts a 6" board or 6" log yet cuts any pattern, too!
- cuts all metals up to 1/2" steel and 2" pipe!
- cuts 4x4 at 45° . . . fine pattern work in most any material, including sheet metal and sheet steel!
- does everything a pattern saw will do . . . out-performs a circular saw . . . works as band saw or nibbler, too!
- beautifully balanced, lightweight, smooth-running . . . completely safe!
- makes cuts only a chain saw could—until now!

MODEL 909

only
\$44⁹⁵ complete

Look what you get! rip guide, circle cutter, 45° tilting base plate and 7 blade complement—the right blade for every job!

WEN PRODUCTS, INC.
5810 Northwest Highway, Chicago 31

Exported by: Scheel International, Chicago



Model 505 Power Saw Kit

8 saws in 1! Cuts 2 x 4's, 1/2" steel, anything! Works as rip saw, jig saw, cross cut, scroll, coping, hack, band and keyhole saw. Cuts any shape, makes own starting hole. Saw Kit with saw, rip guide, circle cutter, 5 blades, \$29.95.



Sander-Polishers and Kits

Straight-line action for perfect, scratch-free surfaces. Sand wood, metal, plaster patches, etc. Polish car, furniture, any surface. 3 types—fine finishing, general utility, heavy duty. \$13.95 to \$19.95



2-Speed 3/8" Power Drill

Lets you change from 1000 to 3000 rpm to get just the right speed for different jobs. Delivers maximum torque under load. 3/8" Jacobs geared chuck. 35 piece Accessory and Toter Kit, \$9.95. Drill only, \$29.95.



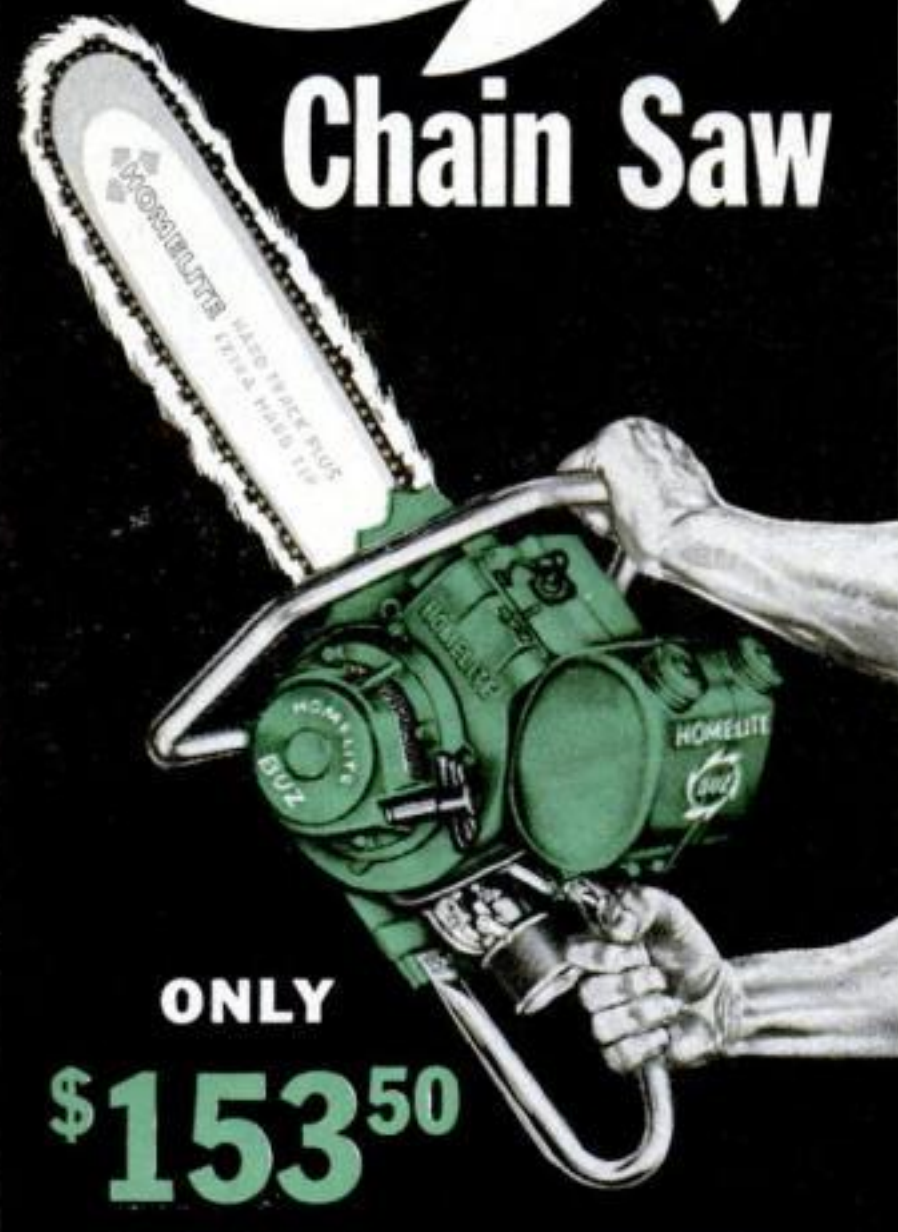
Electronic Soldering Guns

for practically all home soldering jobs. Working hot in 2 1/2 to 5 seconds. Long reach, long life tips, automatic spotlight. 6 models 100 to 250 watts. \$5.95 to \$15.95

New Homelite

BUZ

Chain Saw



ONLY

\$153⁵⁰

COMPLETE, F. O. B. FACTORY

The new Homelite BUZ is the first direct-drive chain saw to give you quality performance at a price everyone can afford . . . only \$153.50 complete, F. O. B. Factory!

It cuts 16" trees in 16 seconds, fells trees up to 3 feet in diameter. Light 19 pounds (less bar and chain) are easy to handle on any cutting job or carry to a campsite. Famous Homelite short-stroke engine and diaphragm carburetor give you full cutting power in any position. Flush-cut handle lets you cut level with the ground.

Ask your Homelite dealer for a free demonstration.

Send 10¢ for informative 16-page booklet "A Man's Guide To Chain Saws."



HOMELITE
A DIVISION OF TEXTRON
INC.
710 RIVERDALE AVE.,
PORT CHESTER, N.Y.

THINK FIRST OF QUALITY . . . THINK FIRST OF HOMELITE

254 POPULAR SCIENCE OCTOBER 1959

The Handy Art of Riveting

[Continued from page 173]

grees) to a depth equal to one-half the rivet-body diameter. Then hammer the end until it fills the countersunk pocket. File off any material projecting beyond the surface of the work.

Installing tubular rivets. When you apply these to leather or other materials they can cut, position the parts on a steel block and hammer the rivets through until they touch the metal. Then shift the work to align the shank with a hole drilled through the support. Continue hammering until the head is flush with the surface of the joint. Turn the work over. If a tight-fitting washer, or "burr," is needed to get a broad grip on a soft material, place it on the rivet end and snug it down with a rivet set, or any bar having a hole through which the shank will pass.

The tubular end should project far enough for firm clinching. To spread it, you can place a centerpunch tip in the hole and tap the punch with a hammer. Often it's enough just to flare the material. If not, use a punch to split the end into several segments; then flatten them with a few light hammer taps. Don't overdo this—you'll only thin out and weaken the material.

Another way to flare tubulars is to spin them on a lathe or drill press. Here the rivet is brought into contact with an ordinary centerpunch spinning in the chuck. Under light pressure, the punch tip first flares the rivet end, then curls it back neatly.

Using split rivets. We've already seen that this type tends to cleat itself when driven into soft materials. You can help this along, when bedding them in wood, by placing the prongs in a position that lets them straddle the grain.

If materials are too hard for the prongs to penetrate, first drill or punch holes, insert the rivet, add a burr if needed, and then spread the prong ends. Use the same technique for bonds between hard and soft materials—when the hard one is nearest the prongs. If the joint is the other way around, back up the softer material with a steel block and drive the rivet straight through the assembly. The prongs should spread the curl backward as they strike the block, bedding themselves firmly in place.

"Now, I must tell you, I have heard a speaker system that approaches the authenticity of concert hall performance"

MISCHA ELMAN



UNIVERSITY'S TOTALLY DIFFERENT STEREO SYSTEM—THE NEW 'TRIMENSIONAL' TMS-2

- Two complete speaker systems in one enclosure
- Unprecedented compactness—only 30" wide
- A third dimension to stereo sound . . . DEPTH
- Placement anywhere in a room
- For monophonic and stereophonic reproduction
- Uncompromised quality at an attractive price

Send for **FREE 16 page brochure**, An informative guide to high fidelity stereo and monophonic speaker systems and components. Write Desk B-3, University Loudspeakers, Inc., White Plains, N. Y.



FAMOUS MEN OF MUSIC CHOOSE UNIVERSITY

Every Home needs a

RED HEAD

Sprayer

complete kit
less motor
\$44
at your dealers



Go easy on yourself! Let a Red Head do your chores — spray painting, waxing, greasing, inflating, cleaning, garden spraying, insecticide fogging, many others! Get professional results every time!

Powerful new Red Head outperforms them all, even many large ½ hp units! Delivers clean, oil-free air at 3.5 cfm and 50-psi pressure. Only 10" high, weighs under 30 lbs. Use any ¼ hp or larger motor.

Write for literature today!
37 Other Models from \$30

JOHNSON SERVICE COMPANY, Compressor Division
Dept. AA, Milwaukee 1, Wisconsin

Please send literature and special offer to

Name.....
Address.....
City.....State.....



In these days of nuclear power, monkeys in orbit and dogs in space suits, some hands never use their skill. And honestly, it isn't always easier or faster to use power tools where hand power will do . . . and it's often not as satisfactory. Take screw driving for example.



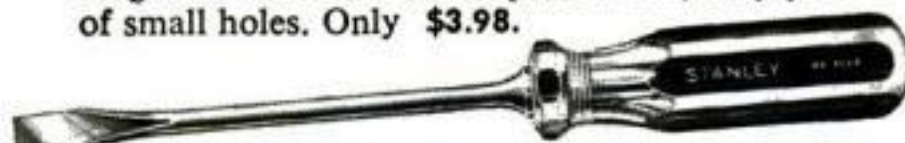
There's a Stanley screw driver that's exactly right for every screw and a "Yankee" push drill that's exactly right for preparing any pilot hole. Here are a few that are favorites with tool users.



"Yankee" No. 41 Push Drill is a precision tool with 8 drill points from 1/16" to 11/64" in the magazine handle. A real mechanic's tool. Only \$6.95 complete.



"Yankee-Handyman" No. 46 Push Drill is a popular priced tool with 4 drill points in magazine handle. Makes quick work, easy job of small holes. Only \$3.98.



Stanley "100 Plus" Screw Drivers are the finest screw drivers made. They can take it. Bolster type blade strengthens bar against prying strains. Available in sizes and styles for every need from \$1.00 to \$2.85.



Stanley-Handyman "Cushion-Core" Screw Drivers are just right for home use. Red core in handle resists pounding. Available in sizes and styles for every need from 49c to \$1.10.

Remember the name Stanley when you buy tools. Stanley is the tool box of the world.

STANLEY TOOLS,
Division of
The Stanley Works,
New Britain, Conn.

STANLEY

®

"MY PRINCIPAL 'TOOL KIT' FOR BUILDING MY 6-ROOM HOUSE WAS VISE-GRIP"

*The True Story of
Marcel Lacasse, St. Johns, Quebec*



"I'm a do-it-yourselfer just completing my 6-room bungalow. Lack of funds kept me from buying a home builder's tool kit. Instead, I bought two Vise-Grips which have helped me everywhere—in plumbing, electrical work, carpentry! Vise-Grip is truly many tools in one."

WISE-GRIP Does More Jobs Easier than Any Other Tool

You'll find *hundreds* of uses for powerful, all-purpose Vise-Grip. It's a pliers, wrench, clamp, hand vise, wire cutter—all in one tool! Ask for the new Vise-Grip with Easy Release. Only \$2.15 to \$2.95 at your hardware store.



PETERSEN MFG. COMPANY
Dept. PS-10, DeWitt, Nebr.

PEEL OFF PAINT



- Remove old finishes easier, faster
- Non-inflammable and needs no afterwash
- For wash-off or scrape-off use

Heavy-Bodied KLEAN-STRIP
PAINT REMOVER

THE KLEAN-STRIP CO., INC.
2340 S. Lauderdale, Memphis 6, Tenn.



The Tragic Truth About Taking Dope [Continued from page 83]

Recent investigations show, too, that by affecting the pituitary gland, morphine affects the adrenal and the sexual glands as well. This explains why some women drug-takers stop menstruating and why men and women alike have a lessened desire. And this in turn points to the basic explanation of dope-taking in certain cases—it relieves a problem, the sexual drive, that some people don't want to be bothered with.

What happens when a drug-taker can't get it?

His changed chemistry starts reverting to normal—a very painful process. Six or eight hours after his last dose of morphine, the addict becomes nervous and anxious. In another few hours he feels bad all over—something like having the flu. He crawls into a corner, draws his knees up, falls into troubled sleep.

After a day of abstinence, his eyes and nose run, he sweats, and he suffers wave after wave of gooseflesh. The symptoms grow worse—a severe aching in the legs and in the back, a twitching of muscles in the arms and legs, vomiting, diarrhea. He has a slight fever, his blood pressure is up, he breathes more rapidly. He can't eat. He is utterly miserable.

The symptoms reach a peak after a day and a half or two days. After three days they begin going down. By the fifth day he feels as if he were getting over the flu. A few days later he may still be weak and nervous but he has just about licked the withdrawal sickness.

Dependence on drugs may have complicated causes

When a person takes a drug like morphine, according to one likely theory, his autonomic nerve centers try to compensate for its depressant effect. They do this through certain chemical changes intended to keep the body processes on an even keel. But the depressant effect is just what the drug-taker values. In order to get it he has to keep the compensatory forces in check by taking more and more narcotic. When his body no longer has the drug, the compensatory forces take over and it is some days before a balance

MODERN, HANDY HOUSEHOLD TOOL WITH 1001 USES...

ARROW

JUNIOR STAPLE GUN

JT 21

FEATURE FOR FEATURE . . .
GIVES YOU MORE FOR YOUR MONEY
THAN ANY OTHER STAPLING GUN
SELLING AT THIS LOW PRICE!

• UNIQUE SAFETY COMPRESSION HANDLE

Compression handle stops at proper position to prevent pinching or shearing of hand between handle and frame.

• SAFETY LOCK

Holds compression handle in non-shooting position which cannot be opened by children.

• NON-JAM LOADING MECHANISM

Precision-locked loading mechanism prevents bunching up of staples, thus assuring smooth, continuous flow.

• BUILT FOR LONGEVITY

Special shock-absorbing bumper designed to lengthen life of gun.

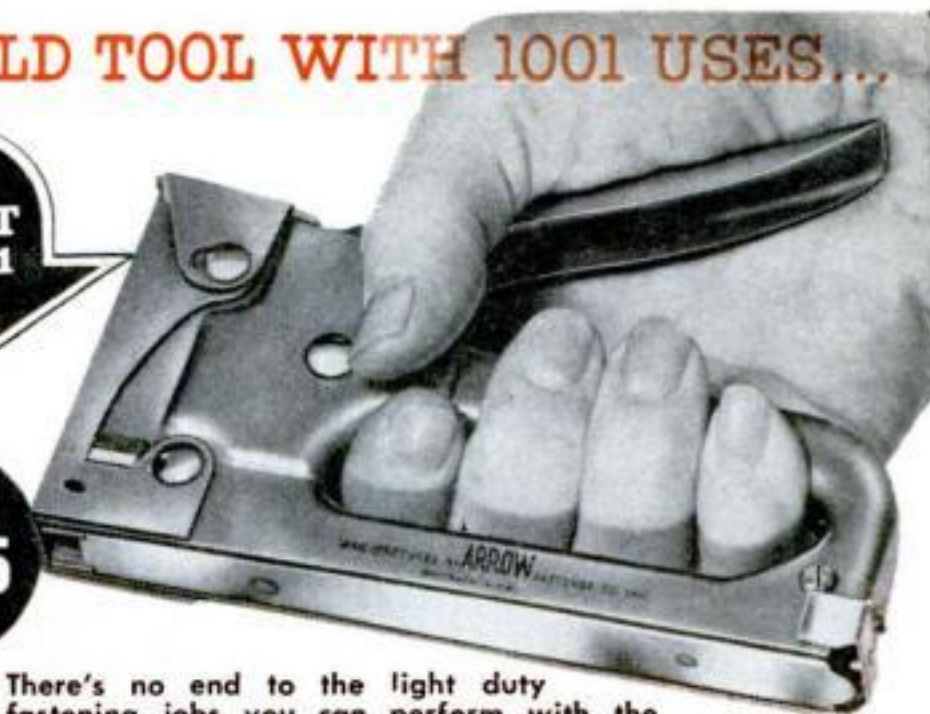
• VISUAL REFILL WINDOW

Permits user to know at a glance when staples in gun are running low.

• BUILT-IN STAPLE LIFTER

Conveniently built-in lifter at base of gun for immediate removal of staples without staple gun leaving hand.

ONLY
\$4.95



There's no end to the light duty fastening jobs you can perform with the sturdy little JT-21 Junior Staple Gun! Every day you'll find many new uses for it in and around the house! Loads 100 staples in 2 sizes — 1/4" and 5/16". Locks to fit in pocket for easy portability. Comes in attractive colors . . . making perfect gift for the housewife. Buy at better hardware, lumber, building supply and stationery stores everywhere.



VALANCES



UPHOLSTERING



INSULATING

ARROW FASTENER COMPANY, INC.
1 JUNIUS STREET, BROOKLYN 12, N. Y.

Makers of Staplers, Tackers & Pliers . . . For Every Purpose . . . in Every Price Range

Special Values... New Surplus Equipment!

OIL GEAR HYDRAULIC MOTOR



Disp.: .342 cu. in./rev.
R.P.M.: 1500 Maximum
Pressure: 1100 P.S.I.
Max.
Torque: 45 inch pounds.
Motor has a 4 7/8" dia.
flange four bolt mount-
ing. Shaft is 3/8" stand-
ard with Woodruff key-
way. Has 3/8" pipe
thread ports fitted with
removable 3/8" O.D.
fittings for seamless
steel tubing. Rotation
— either direction.
5 3/4" L. x 4 7/8" D.

Shpg. wt., 13 lbs.

F.O.B. Chicago

No. 540R

\$24.00

Four-Way Open Center HYDRAULIC CONTROL VALVE



Valve has built-in adjustable relief valve factory set at 1000 P.S.I. Spring loaded neutral position. For use with one double acting cylinder or reversible hydraulic motor. In neutral position, cylinder is locked and pump unloaded. Can be used as single unit or mounted in series. Has 3/4" pipe thread inlet and outlet. 1/2" pipe thread cylinder ports. Finger grip handle.

Shpg. wt., 10 1/2 lbs. F.O.B. Chicago

No. 126

\$23.50

PESCO GEAR TYPE HYDRAULIC PUMP



Continuous duty; positive displacement .993 cu. in./rev. Delivers 6 G.P.M. at 1600 R.P.M., 1200 P.S.I. Requires 7 H.P. Speed range is 400-2000 R.P.M. Max. pressure 1500 P.S.I. Max. delivery 7.5 G.P.M. at 2000 R.P.M. 3/4" pipe thread ports, 3/4" shaft with Woodruff keyway. 2 hole base mounting. Clockwise rotation. 5" L. x 4 1/8" W. x 7 3/4" H.

Shpg. wt., 11 lbs. F.O.B. Chicago

No. 160R

\$24.50

The hydraulic pump, valve and hydraulic motor may be used together for a fully reversible hydraulic drive system. Two of the No. 540R motors may be driven from the pump for greater power.

STEEL TANKS—Bargain-Priced for Fast Selling!

Use these tanks on compressors, for tire inflators, pulsation chambers, floats, buoys, hydraulic reservoirs, fluid containers, etc.



Type G-1 — Capacity, 2100 cu. in. (9 gals.) 450 P.S.I. 1/4" port at each end. Stainless steel. 24" L., 12" dia.
Shpg. wt., 19 lbs.
F.O.B. Chicago

No. 63 \$14.95 each Two for \$27.00



Type D-2 — Capacity, 500 cu. in. (approx. 2 gals.) 450 P.S.I. 1/4" threaded openings at each end. Carbon Steel. 24" L., 6" dia.

Postpaid \$4.95
No. 391 Two for \$8.50

FREE! New, Big GROBAN Catalog! Bargains for farm, home, factory, workshop! WRITE TODAY for your FREE Copy!

GROBAN SUPPLY COMPANY Dept. PS-10
1139 S. WABASH AVE. • CHICAGO 5, ILL. • WEbster 9-3793

STICK

WITH

LEPAGE'S[®]

TRADE MARK



TAPE AND GLUE

Everything for the Craftsman!



WRITE FOR NEW 132 PAGE

WOOD

AND HOME WORKSHOP CATALOG

Finest Domestic and Imported Woods
... Mouldings, Hardware, Tools ...
ALL AT LOW MONEY-SAVING PRICES!

Your complete wood buying guide and project book. Craftsman is your best, most complete source of finest kiln-dried domestic and rare imported woods, beautiful wood inlays, colorful bandings, matched plywoods, embossed mouldings, carved ornaments, newest woodworking tools, "hard to find" cabinet hardware and fittings... more than 1500 items! Packed with newest scroll saw patterns, project ideas and money making plans. Enclose 25c (refunded with first order) to help pay mailing, handling cost. Write:

CRAFTSMAN WOOD SERVICE COMPANY, Dept. B-10
2729 SOUTH MARY STREET - CHICAGO 8, ILLINOIS

NEW!!

- Mosaic Tile Kits
- Period Clock Kits
- New Line of Metal Legs
- Over 1,500 Items!

The Tragic Truth About Taking Dope is restored. When the drug is withdrawn, the symptoms are often the opposite of those on first taking drugs.

The habitual user of drugs, then, keeps on taking them not only to generate a rosy glow, but also to hold off a very unpleasant illness. In many cases something else may be important, too—the work involved in getting a steady supply of the drug. This "hustling" gives an addict what everybody has to achieve some way—a sense of accomplishment.

What can be done for a drug taker?

A note to the U. S. Public Health Service Hospital, Lexington, Ky., will bring him an application form and a pamphlet, "Information for Prospective Voluntary Patients." The Lexington hospital accepts women from any state and men from east of the Mississippi. Men from west of the Mississippi are usually treated at the Public Service Hospital in Fort Worth. Many cures are achieved. But even among those patients who stay the several months necessary to be cured, many also relapse.

Experiments at Lexington point to the answer. They show that narcotics relieve not only pain but also the anxiety produced by the anticipation of pain—and pain, of course, need not be physical but in our hearts and heads.

Psychiatrists who have studied them say narcotic takers, by and large, are often intelligent people, cursed with inadequate personalities, who find many of life's problems exceedingly painful.

The same thing is true of many alcoholics, these psychiatrists say. But the type of person who relies on alcohol is often at heart aggressive. Alcohol lowers the barriers and lets him get in there and fight, or try to make love, or raise the devil. But the man who relies on narcotics just wants to get away from it all.

Once the addict's physical dependence on drugs has been broken, the problem is to get him to see why he took drugs in the first place and then to help him find acceptable ways of meeting his troubles.

Surveys of former Lexington patients indicate that when they get needed help—for instance, in finding a place to live, in getting a job, in steering clear of drug-

SHOPMATE®

ALL-NEW

Radial Arm Saw

**WITH PATTERMAKER
PRECISION AND
"DUAL PORTABILITY"**

**FIRST RADIAL SAW WITH DUAL PORTABILITY
EVER OFFERED AT ANYWHERE
NEAR THIS LOW PRICE!**

So many more features for so much less . . .
all the accuracy and twice the versatility in a
rugged, big capacity precision instrument
that produces an endless variety of
professional quality work!

Powerful 1 hp automatic safety
clutch saw makes all cuts easily:
cross cuts, dados, rips, mitres,
bevels, cove cuts, etc. Other
features include: widely spaced
fully protected ball bearing carriage,
heavy-duty 5/8" Acme elevating screw
inside extra sturdy ground nickel-plated column,
automatic self positioning precision adjustments,
automatic quick changing lever adjustments,
anti-kickback in front of blade, fingertip
power control, 8-second blade coast-down,
full 180° swing, and many other
outstanding features.

At hardware and building supply dealers or write
PORTABLE ELECTRIC TOOLS, INC.
320 WEST 83rd STREET, CHICAGO 20, ILLINOIS

NEW!

Special plastic
impregnated
table guar-
anteed not
to warp!

SAVE OVER \$100

\$149⁷⁵

SUGGESTED RETAIL

USE AS A
PORTABLE
SAW . . . 7"
saw detaches
in 8 seconds.

OR A RADIAL
SAW . . . makes
every cut!

MAIL THIS COUPON FOR INFORMATION
ON THE SHOPMATE RADIAL SAW! PS-109

Name _____

Address _____

City _____ State _____

WELD **BRAZE**
SOLDER **CUT**



4WAY

ONLY
\$14.75

f.o.b. factory

WELDER

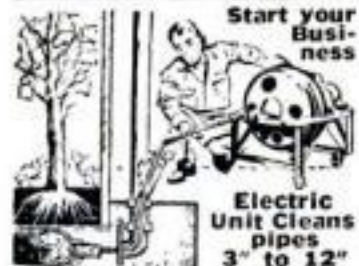
Complete with
Twin Carbon Arc
Torch and ac-
cessories . . . to
handle all metal-
craft work.

Acclaimed by thousands of
Homeowners, Mechanics and
Hobbyists as the welder of
1001 uses. Easily operated
from properly wired 110 volt
AC or DC line. The ideal gift
with a life-long use . . . Order
today on 10 day money back guarantee.

FOUR-WAY WELDER CO., Dept. F3-K
1810 S. Federal St. • Chicago 16, Ill.



Attachable
Cutter Blades



Start your
Business

Electric
Unit Cleans
pipes
3" to 12"

FREE
★ **BOOK**
**CLOGGED SEWERS
REMEMBER THE
COSTLY PLUMBING BILL—**

Chicago—Oct. 1. Just introduced is a
Free Booklet on machines which enable
the Home Owner, Janitor or Factory
Maintenance Man to Rod-it-himself—

Yet anyone can operate this new Rod-
ding Tool which is whirled down the drain
in a few seconds. SINKS, BATHTUBS,
TOILETS, URINALS, FLOOR DRAINS,
HOUSE TO STREET SEWERS can be
cleared of Rags, Grease, Paper, Sand
while Cutter blades can be added for re-
moving roots. A new discovery in Swedish
Music Wire gives the rod 100% more
flexibility.

Another new unit is the Miller Electric
Rodder which has patented cutters that
expand automatically to the size of the
pipe. It will clean out heavy obstructions
in pipe diameters 3" to 12". Smaller Sizes
available. But now, what are these Tools
worth in **COSTLY PLUMBING BILLS
SAVED.** Tear this Ad out—and write your
name and address beside it for **FREE
BOOKLET** on Hand and Electric Units.
Obey that urge. No Agent will call. A post-
card will do! (Chicago Phone Kildare 5-1702)

MILLER SEWER ROD, Dept. PR-10
4640 N. CENTRAL AVE., CHICAGO 30, ILLINOIS



**REPLACE YOUR
WORN-OUT
WOODEN
HATCHWAY...**

**with an
all-steel
BILCO
basement
door**



. . . and your basement entrance will be weathertight, good-
looking — for a lifetime. A spring-balanced Bilco door floats
open at a touch . . . locks securely . . . costs so little. And you
can install it yourself — in just a few hours!

Bilco

**AMERICA'S FINEST
BASEMENT DOOR**

The Bilco Co., Dept. R-1010
New Haven 5, Conn.

Please send me your free illustrated folder
and name of local dealer.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

You'll

DO THE JOB EASIER WITH THE RIGHT PLIER

CHAN NEL LOCK



Full Polish Finish Quality Pliers

Any job is a hard job without the right tools. These special purpose Channellock quality pliers will help you do hundreds of jobs easier, faster. They're precision-built of high grade drop forged steel to last longer, work better. And you'll like the gleaming, full-polished finish at no extra cost.

Ask for Genuine Channellock pliers by name.
Look for the trademark on the handle.

CHAMPION DeARMENT TOOL COMPANY
MEADVILLE, PENNSYLVANIA

The Tragic Truth About Taking Dope
taking former associates—they have an excellent chance of staying cured.

What about the crazy, murderous "dope fiend?"

Drug-addiction authorities insist that we have been oversold on him. In any event he is often actually *not*—like most habitual dope-takers—a narcotic addict.

They give this picture.

There may now be 60,000 addicts in the United States—perhaps one for every 3,000 persons, as compared with one for every 400 persons before World War I.

Ninety percent or more of the drug addicts use opiates—drugs that come from opium, which comes from the poppy plant—or preparations with an opiate-like action. All are narcotics.

Most of the rest of the addicts smoke marihuana, the leaves of the female hemp plant. The majority of the smokers get only mildly intoxicated. They are easily amused, do a good deal of giggling, sleep much more than usual, develop big appetites. Marihuana does push unstable persons temporarily out of their minds, and these persons may well be dangerous.

Only a few percent of the addicts use cocaine, which comes from the leaves of the coca plant. Taken by injection, it first stimulates and then depresses the nervous system, starting with the brain. For a few minutes it confers a feeling of tremendous mental and physical power; everything seems to lie within the taker's grasp. But this sensation dies in 10 or 15 minutes, so the addict takes another dose, and another. As toxic effects build up, he becomes temporarily psychotic. He thinks insects are crawling on his skin and that people are watching him. Anybody he meets may appear to be a detective who is persecuting him. He is highly dangerous.

Marihuana and cocaine differ from the narcotics in other ways. They do not produce tolerance, and when the addict can't get them, he does not become sick.

People become addicted to still other drugs—mainly the barbiturates and alcohol, which, in excess, produce similar intoxicating effects. Such addicts are not counted in the usual estimates of drug addicts, nor, as such, are they treated by the Public Health Service hospitals.

SURPLUS SALE

GOVT. SURPLUS
EXCESS INVENTORY
BANKRUPT STOCK

12-V DC ROBOT CONTROL MOTOR



• Item #522. Powerful DC unit. Geared motor operates lever. Use to operate remote valves, throttles, levers, steering, doors, switches, open-close drapes, etc. Govt. cost \$47.50. SALE **\$5.95 FOB**

STANDARD DIAL PHONE



• Item #715. Modern dial phone. Use for extension to main line on private system. Work on any system. Govt. cost \$25. SALE **\$9.95 Ppd**

MIRACLE EPOXY LIQUID METAL

• Item #1725. Marvelous new Epoxy chemical metal bonds to any surface. Big writeup in LIFE and READER'S DIGEST. Consists of 2 chemicals in self-measuring tubes. Squeeze out correct amount of each, then apply. Dries steel-hard in 50 minutes. Can be sanded, drilled, tapped, etc. One ton strength. Bonds objects to glass, steel, brass, plastics, wood, aluminum, etc. Kit of 2 self-measuring tubes **\$3.95 Ppd**



FARMER-CONTRACTOR PUMP



• Item #200. 2 1/2" size, 16,500 gph. New ball-bearing centrifugal irrigation-contractor pump, 280 gpm. 65 ft. head. 8" pulley, 2 1/2" intake, 2" discharge. Wt. 37 lbs. Govt. cost \$98. SALE **\$49.50 FOB**

GOLF and PERSONNEL CAR MOTOR

• Item #573. Amazing buy! Use for golf cars, factory personnel cars.
• Powerful expensive ball-bearing gear reduction motor runs on any 6-v or 12-v storage battery. Powerful high torque. Shaft speed 150-300 rpm. Full instr. Easily reversible. Wt. 34 lbs. Size 7 1/2"x9"x14". Est. Govt. cost \$250. SALE **\$19.46 FOB**



STORAGE BATTERY WINCH

• Item #311. Powerful fully reversible ball-bearing gear reduction winch, 1000-2000 lb. pull. Use on 6 or 12-v battery. Holds 40' of 1/4" cable. For trucks, docks, boats. Govt. cost \$280. SALE **\$46.71 FOB**



AIR COMPRESSOR BARGAINS

• For painting, cleaning, fires, termite, etc. -ible own outfit.
• Item #450. DeLuxe Kit. Compressor, tank, gauge, regulator, paint gun, relief valve, fittings, hose, instructions. List \$52. SALE **\$43.91 FOB**
• Air Components. Compressor 1-cyl. \$19.35. Air tank, \$10.90. Regulator \$3.95. Pop-off \$1.95. Press. Gauge \$1.89. Finest Paint Gun \$11.50. Auto Switch \$4.75. All Ppd. in U.S.

HYDRAULIC EQUIPMENT BARGAINS

Savings to 80%. Build loaders, diggers, presses, etc. All brand new.
• Hydraulic Hand Pump - Cyl. \$29.87 FOB
• Control Valve, 1 or 2 way... 18.00 Ppd
• Tractor Pump 1000 psi... 45.50 Ppd
• 2-Way Cyl. 1 3/4" bore, 11" stroke 9.87 FOB
Get catalog, many items.

CONTRACTORS LEVEL-TRANSIT

• Item #804. Leading make, brand new latest model level-transit with tripod and case. Used by leading builders, schools, etc. 12-X scope, high accuracy, use as level or transit. Limited time offer **\$69.95 Ppd**
• Many other instrument buys.



INVALID CHAIR-BOY'S AUTO MOTOR

• Item #576. Marvelous ball bearing battery (6 or 12 v.) electric gear reduction motor. Makes wonderful amazing electric drive for boy's auto, invalid's chair, etc. Also useful for factory electric lifts—trucks, etc.
• Gear ratio 33 to 1. High torque. Finest precision gears. Fully reversible. Buy of the year. Size 15 1/2"x5 1/4". Wt. 27 lbs. Est. Govt. cost over \$295. SALE **\$15.79 FOB**



SPECIAL OF THE MONTH!

GOVT. FIRE EXTINGUISHER

• Item #120. New Govt. genuine Phister pressurized carbon-tet extinguisher. Ideal for homes, garages, factories, offices, farms.
• Consists of 2 gal. steel cylinder with 1-gal. carbon-tet, pressurizing pump, pressurizing valve, pressure gauge, 24" hose, nozzle.
• To use simply open valve, compressed air throws powerful stream. No need to invert. Renew air pressure by operating pump or at filling station. Refill carbon-tet readily available. Size 25"x7"x7". Wt. 35 lbs. Govt. cost \$89.50. SALE **\$19.95 FOB**



BATTERY HYDRAULIC PUMP

• Item #920. New electric hydraulic pump. Use on lift trucks, loaders, etc.
• Operates on 12 or 6 24-v DC. 1000 p.s.i. 1 to 3 gpm. Inlet and outlet ports, 3/4". 14 female threaded. Size 15"x7"x6". 35 lbs. Cost Govt. \$175. SALE **\$16.95 FOB**



115-V to 34-V TRANSFORMER

• Item #1522. New. Ideal for DC battery gear motor and DC winch shown in this ad.
• 115-volts to 34 volts at 65 amps. 8"x10"x6". Wt. 48 lbs. Cost \$45. SALE **\$17.95 FOB**



ELECTRICAL-ELECTRONIC BUYS

Typical surplus items in our '59 catalog:
• Radiation Geiger Tubes, cost \$20... \$.79
• 905 Cathode Ray Tubes, cost \$52.50 4.91
• G.E. Telechron Clock Timer... 5.97
• Army HS-30 Head Sets, cost \$10.50 1.75
• AC Voltmeter, 0-150-v... 3.55

Electronics, Power Tools, Binoculars, Hydraulics, Power Plants, Air Compressors and thousands of other items.



SURPLUS CENTER
LINCOLN, NEBR. DEPT. 832

Trap household odors and dust...
SAVE MONEY, too!

RP EZ KLEEN
WASHABLE, ALUMINUM

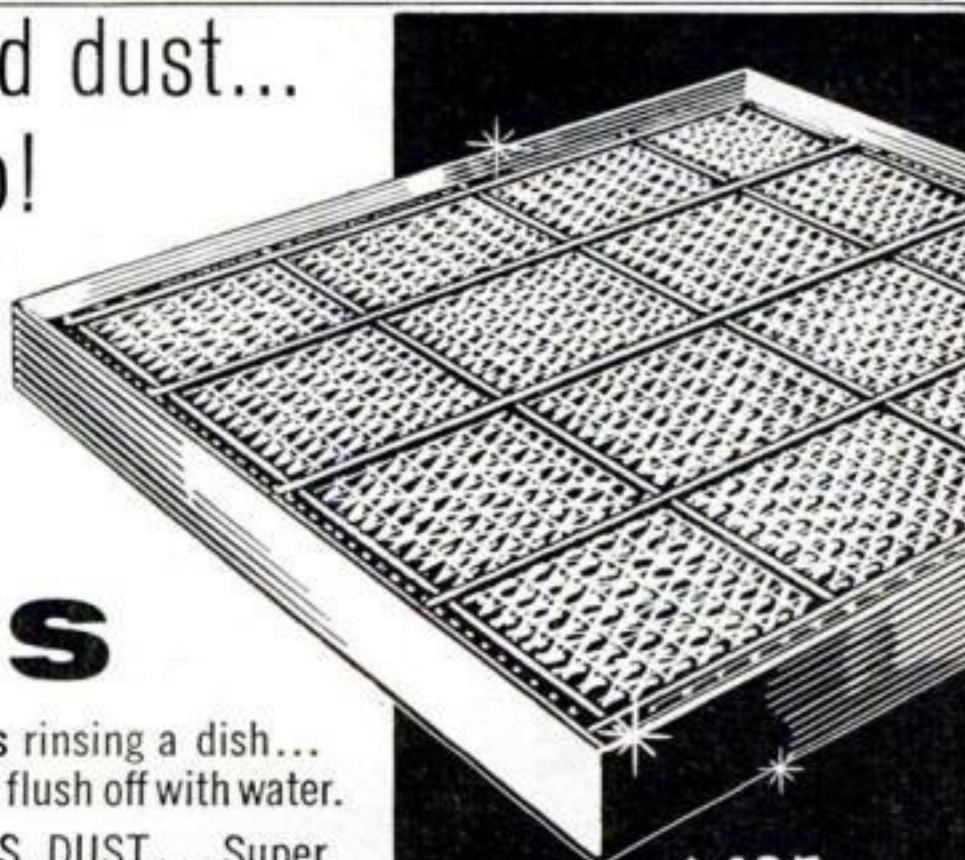
FURNACE FILTERS

Economical because they're WASHABLE. As easy as rinsing a dish... collected dust, dirt, pollen and water soluble adhesive flush off with water.



Amazing adhesive REMOVES ODORS, DUST... Super Filter Coat adhesive, in two types of spray containers, traps and holds odors and dirt...has built-in detergent to simplify washing. Restores like-new efficiency to filter.

Long-lasting ALUMINUM won't rust, makes cleaning easier...lasts for years and years of clean filter service...and improved furnace operation.



As low as **\$1.95**

for popular sizes

Write For
FREE BOOKLET

Complete information on what to look for in an air filter.



ASK YOUR DEALER

IN CANADA: Hicks-Baker Ltd., Winnipeg • Spall-Bowman, Ltd., Guelph
RESEARCH PRODUCTS Corporation • Dept. 230, Madison 1, Wisconsin

RUSTY



TOOLS?



QUICK! Clean 'em with famous 3-IN-ONE OIL. A few drops every now and then prevents rust and tarnish. Famous for 64 years! On sale everywhere.

3-IN-ONE OIL
REGULAR · OIL SPRAY · ELECTRIC MOTOR

KNOB LOOSE?



Avoid shrinkage with reliable, easy-to-use Plastic Wood.

Won't split, holds screws solidly!



For surest results always use GENUINE

PLASTIC WOOD

Handles like putty—hardens into wood!

CLEANS BRUSHES quickly



IMPERIAL
RAPID BRUSH CLEANER

This unique liquid quickly cleans bristles of hardest caked paint. Leaves them glossy and springy—never flabby. Ready for instant use. At paint and hardware stores.

Send 25¢ for illustrated Refinishing Manual or write for free folder "Care of Paint Brushes"

Wilson-Imperial Co. 121 Chestnut St. Newark 5 N.J.

Flying the Atlantic by Jet

[Continued from page 93]

pounds of weight for any given power setting. "Hot" air was thinner air, and thinner air required more fuel.

In planning the flight, the dispatcher had probed for soft spots in the prevailing westerlies. The route chosen was not actually the shortest. But lower-velocity winds would mean less time to Gander—2,388 miles and an estimated five hours, six minutes away.

"London Radar," Warren radioed, "Clipper one zero three over Woodley at three thousand, estimating Chepstow one two five three."

"Clipper one zero three," acknowledged Radar, "you are cleared to sixteen five. Change to London Airways on one two one point three."

Warren switched frequencies. London Airways cleared the plane to 30,500 feet. In his own earphones, Capt. Dugan monitored the messages. He was always busiest in the terminal areas. He not only had to fly the airplane but supervise the rest of the flight deck as well.

Ireland and beyond. The Clipper crossed Strumble 30 minutes after take-off. There, London Airways handed the airplane over to Shannon Airways. It was up to Shannon to give the flight 2,000 feet of altitude separation from oncoming traffic and 20 minutes of time separation from like-altitude westbound traffic.

Miles below, the terrain was a page from a stamp collection. Above, the sky, unaffected by light refractions in the atmosphere, was near-indigo. The plane seemed suspended motionless in space. Back in the cabin, passengers began standing coins on edge on luncheon trays.

Capt. Dugan flipped on his yaw-damper. This was to minimize "Dutch roll," the tendency of swept-wing airplanes like this one, to "hunt." Hunting costs speed.

Over Shannon came this message, "Jet Clipper one zero three, you are cleared to three five zero (35,000 feet) and on your flight-plan track to Gander. Change over to Oceanic Air Control frequency five six seven one primary and eight eight six two secondary."

Capt. Dugan checked his watch. Flight 103 was four minutes behind schedule.

The flight-deck crew had relaxed into a familiar routine, laced with small talk. Engineer Paul Eckhardt studied his en-

New "PULL-GEAR" SPEED-REDUCING PULLEY



Provides Correct Speed and Power to Drill Up to 1 3/8" with 1/2 H.P. Motor

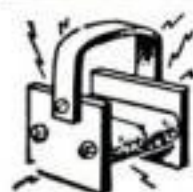
Amazing new internally geared speed reducer doubles drill press capacity. Greater power, greater efficiency, greater productivity. Provides the correct speed and power

for larger drilling, reaming, tapping and boring on light presses. Easily installed in five minutes. Adaptable to all type machines. Spindle speed range 45 to 3000 RPM. Write for Literature.

PULL-GEAR CO.

25429 Mound Rd.
Warren, Michigan

Boston, Mass.—Chandler & Farquahar Co., Longwood 6-7800
Chicago, Ill.—Chicago Supply & Tool Co., Everglade 4-3933
McMaster-Carr Supply Co., Andover 3-3161
Cleveland, Ohio—Reynolds Machinery Co.
Hillside, N. J.—Tool Specialties Co., MURdock 6-8700
Los Angeles, Calif.—Almquist Brothers, LUDlow 8-9111
New York City—Rudolf Bass, Walker 5-0440
San Diego, Calif.—Acme Tool & Supply Co., CYpress 8-7181
Seattle, Wash.—Star Machinery Co.



GENUINE ALNICO MAGNETS

AMAZING, PERMANENT, NON-ELECTRIC. HIGHLY PRACTICAL. Conduct interesting experiments. Hundreds of uses. Retrieve valuable steel items such as guns, tackle from fresh or salt water; tools from tanks & drains. **GUARANTEED.** Try any magnet one week. Money back if you are not well-pleased.

No. S-710 (Wt. 53 oz.) Has pull of 225 lbs. on steel block.....\$18.00
No. S-625 (Wt. 70 oz.) Has pull of 125 lbs. on steel block.....\$10.00
No. S-575 (Wt. 18 oz.) Has pull of 75 lbs. on steel block.....\$ 7.00
No. S-500 (Wt. 13 oz.) Has pull of 50 lbs. on steel block.....\$ 5.00
No. S-90 (Wt. 5 oz.) Has pull of 15 lbs. on steel block.....\$ 3.50
No. S-102 Pocket Magnet, 5 lb. pull, 2 for.....\$ 1.50
No. S-47 Hot Pad Magnets, 10 for \$1.00.....50 for \$ 4.87
No. S-35 Hobbyist assortment of 8 magnets.....\$ 2.00

Send M.O. or check. We pay postage. Sorry no C.O.D.'s.

MIAMI MAGNET COMPANY, 3240 N.W. 27th Ave., Miami 42, Fla.

The Battery That's Used in Guided Missiles Now Released as Government Surplus



For Photography, Aircraft, Models, \$1.95 ea. Searchlights, Radios, etc. Postpaid
Sintered-plate Nickel-Cadmium alkaline storage batteries designed for "Nike" Missile and now surplus due to design change. A lifetime battery with no known limit of service (over 5000 recharges on test without loss of capacity). Other features: Virtually indestructible, compact & lightweight, withstands heavy shock and vibration. Flat voltage curve during discharge, retains charge year or more, high discharge rate up to 50 amps. for this cell, no corrosive fumes to harm clothing or equipment, spill-proof construction, discharge in any position, indefinite storage without deterioration, operates in temperatures -60° F to +200° F. Each cell is approx. 10 ampere hour capacity, nominal voltage per cell is 1.2 volts. (A 6 V. battery requires 5 cells.) Cell size 6" H. x 2" W. x 1 1/2" T. Wt. 6 oz. ea. Uses Potassium-Hydroxide (30%) electrolyte. Negligible loss during lifetime service. Add only distilled water once a year. A fraction of Government cost.
Used Test Cells.....\$1.95 ea. Postpaid
Brand New Cells.....2.95 ea. Postpaid

All cells guaranteed to your satisfaction or money refunded (less Postage).

ESSE RADIO COMPANY, Dept. 2J
42 W. South Street Indianapolis 25, Indiana



BUILD THE BEST!

build quality money-saving

knight-kits®

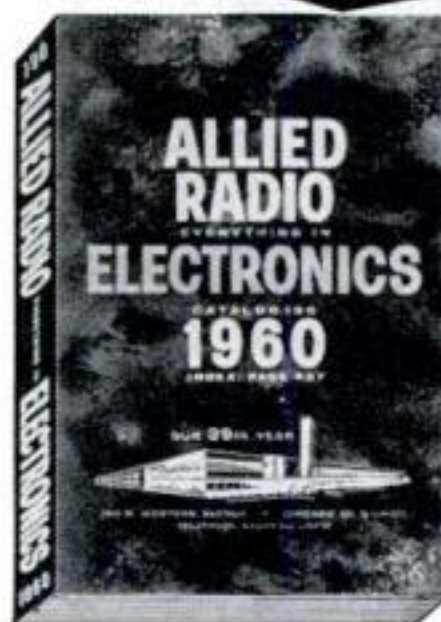
A PRODUCT OF ALLIED RADIO

see them all in

ALLIED'S 1960 ELECTRONIC SUPPLY CATALOG

FREE

build your own...
it's easy...it's fun!
SAVE UP TO 50%



HI-FI
KITS



INSTRUMENT
KITS



HOBBY KITS



HAM
KITS

world's
largest
stocks



SAVE ON EVERYTHING IN ELECTRONICS

Get more for your money in Stereo hi-fi systems and components; save on recorders and tape; Amateur station equipment; TV tubes, antennas, accessories; test instruments; electronic parts, tubes, transistors, tools, books. Send today for your **FREE 1960 ALLIED Catalog!**

EASIEST TERMS
only \$2 down on
orders up to \$50

**FREE
catalog**

ALLIED RADIO

100 N. Western Ave., Dept. 27-K9, Chicago 80, Ill.

☐ Rush **FREE 1960 ALLIED Catalog**

Name

Address

City Zone State

Dr. Grabow PRE-SMOKED PIPES

Cool, sweet and mild
from the first puff.

No breaking-in
because they're
mechanically
pre-smoked.



Imported
briar

Viscount
\$5.00

other Dr. Grabows
from \$1.50 to \$10

♠ trademark of quality

For informative booklet write:
Dr. Grabow Pipe Co., Greensboro, N.C.



Proto's Adjustable Wrenches, including the famous Klik-Stops®... and Pipe Wrenches, both Stillson pattern and Heavy-Duty... are the finest obtainable. Every Proto Tool is guaranteed.

PROTO TOOL COMPANY

2203 Santa Fe Ave., Los Angeles 54, California

503 Allen St., Jamestown, N.Y.

1703 Oxford East, London, Ontario, Canada

Flying the Atlantic by Jet

gine temperatures, rate of fuel flow and the pressure ratio between the inlet air and discharge gases at the tailpipes. The pressure ratio, at 1:2.5, translated into engine-propulsion efficiency. The fuel-flow meters showed the engines were consuming 12,153 pounds an hour—slightly under the estimate. This would add to the plane's endurance.

In front of Eckhardt, Capt. Dugan and First Officer Warren occasionally double-checked Eckhardt's estimates of endurance with their pocket slide rules.

Veteran of the airways. The Atlantic was Capt. Dugan's own pond. In the last 19 years he had flown it 600-odd times. Nevertheless, the speed of his jet impressed him. He could take off in the afternoon, fly down the long arc of the western sun and land hours before twilight.

One hour and 36 minutes after takeoff, Warren contacted the weather ship Jig. He had to do this at least five minutes before he was due abeam of her. The Jig's radar could miss the jet completely, at its speed, if it weren't forewarned.

In a few minutes Jig called back, "Clipper one zero three, bearing one six three, distance four eight point five miles."

That checked with the position fixed by Navigator Dick Killgore. His position report always had to be an estimate; in the few minutes it took him to compute it, the airplane traveled anywhere from 35 to 60 miles.

Flight 103 was now five minutes behind schedule.

Killgore had become the busiest man on the flight deck. Each five degrees of longitude, he had to plot the jet's position for transmission to the appropriate control center. He had a wealth of instruments—Loran, a standard direction-finder, radar, a radio altimeter, a European system called Console and, of course, a periscopic octant. Once each trip he was required to take a star or moon or sun sight through the roof to keep in practice.

Halfway point. At 15:16 p.m., Flight 103 passed from Shannon's control to Gander's control at 30 degrees west longitude. But its "equitime point"—the place where, if necessary, the captain could return to Shannon or go on to Gander, as he chose—was a few minutes beyond

WAR SURPLUS AND OTHER BARGAINS **SAVE UP TO 90%**



OXYGEN BREATHING SUPPLY UNIT.

Designed for the Air Force for high altitude flying, also ideal for medical purposes. Compact, portable; could save your life in the event of a heart or asthma attack. Complete with steel oxygen bottle, cylinder pressure gauge, demand type reg., oxygen flow blinker, 36" hose and face mask. Shpg. wt. 20 lbs. Tested, checked and filled. Approx. GOVT. COST \$250. NEW. \$39.95.

"SUPER 9" 200 AMP WELDING KIT

With Deluxe accessories consisting of one 200 AMP. Gen., adjustable helmet, electrode holder, 30' welding cable, rheostat, giant toggle switch, voltmeter, voltage reg., 1 pr. heavy-duty welder's gloves. All units guaranteed pre-tested. Approx. GOVT. COST — \$500. Most items new — all perfect. \$26.00.



140-1 REDUCTION GEAR

For beaching boats, winches, hoists. Ideal for motor in golf or boy's electric car. DC motor & clutch. Easily reversible wiring diagram furnished. Hi torque, 1° speed. Runs on 6-12 or 24 V. Wt. 65 lbs. gross. Approx. GOVT. COST \$300. Like NEW, \$12.00. Matched splined gear for above — \$3.00 ea. *225-1 Reduction Gear — \$13.50



ELECTRIC PUMP WITH CONTROL UNIT

Runs on 12 or 24 V. Centrifugal type. Draws 5.2 AMPS. Has built-in removable filtering screen. Great for bilge, circulating or sump pump...bait tanks, etc. Pumps 500 GPH. Complete with on and off switch rheostat, 2 speeds (hi & lo). Mfd. by Ingersoll-Rand. Shpg. Wt. 7 lbs. Approx. GOVT. COST \$195. NEW \$8.95.



SENSITIVE ALTIMETER

in 20 ft. increments, 0 to 35,000 ft. (inches of Mercury). Famous Pioneer. Tested & inspected in our own instrument lab. Guaranteed perfect. Approx. GOVT. COST \$150. Wt. 2 lbs. \$14.50.



11 PIECE CROWFOOT WRENCH SETS

Wrenches snap onto T-bar in 3 different positions. The only wrenches for hard-to-get-to places. Mfd. by Plomb Tool Co. for U.S. Armed Forces. Finest case hardened tool steel. No shop mechanic should be without this set. Approx. GOVT. COST \$47. NEW. \$5.95 ppd.



SOUTH WIND HEATER & ACCESSORIES

Mtd. for govt. antarctic expeditions for jeeps and half-tracks. Heating unit puts out over 20,000 B.T.U.'s. Burns any type gas. 6 volt system. Fuel consumption extremely low, 1 gal. per 8 hrs. Terrific for trucks, boats, tractors...farms, warehouses, ranches, boat houses, cabins, etc. Complete with service & installation manuals and over 360 components. Approx. GOVT. COST \$550. Shpg. wt. 120 lbs. gross. NEW. \$39.95. Limited quantity.

"DELUXE 11" ARC WELDING KIT

Consists of 160-250 AMP. Gen., voltage reg., ammeter, shunt, adjustable helmet, electrode holder, pr. welder's gloves, 30' welding cable, reactor coil, giant toggle switch, rheostat. Approx. GOVT. COST \$650. All units guaranteed pre-tested. \$34.95 complete.



WELDING CABLE DOUBLE-O,

heavy-duty, neoprene jacket, fiberglass insulation. Will handle 400 amps. or better. NEW. Approx. GOVT. COST \$40. 50 ft. lengths — \$12.50 ... 100 ft. lengths — \$24.00.

NEW 1960 CATALOG!

Tremendous catalog—our biggest ever—fully illustrated—1000s of bargains in war surplus & other items. Send 25c in coin for your copy today! Where ppd. indicated applies to US only. Other prices FOB Culver City, Cal. Send cash, check, money order. 50¢ dep. COD.



AIRBORNE SALES CO., INC. DEPT. PS 1059
8501 Stellar Drive, Culver City, Calif.

HOW TO

**TURN
Concrete
INTO
Gold**



A MUST FOR EVERYONE CONCERNED!

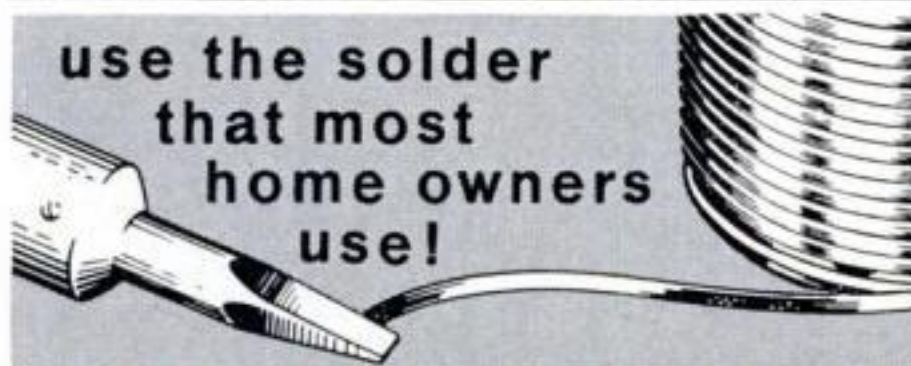
This MANUAL Tells You
How To Make
Handsome Profits
From Concrete Items
YOU CAN MAKE

All you need is a mold or two and a little determination. This Manual contains large, clear pictures, gives prices and description of more than 200 different molds you can buy direct from the manufacturer, AND...priceless trade secrets that make production a snap. Take the first step Today !!!

SEND ONLY \$2.00 FOR YOUR COPY
(Rushed to you by First Class Mail)

CONCRETE MACHINERY COMPANY, INC.
Dept PS Hickory, N. C.

use the solder
that most
home owners
use!



KESTER SOLDER

For your electrical work, radio-TV, do-it-yourself projects...always use the best...KESTER SOLDER. Send for FREE 16-page book that tells you how!

KESTER SOLDER COMPANY

4254 Wrightwood Avenue • Chicago 39, Illinois
OVER 60 YEARS' EXPERIENCE IN SOLDER AND FLUX MANUFACTURING

HUNTER TOOLS



HOLDS..
DRIVES..
REMOVES SCREWS

YOUR DEALER
HAS ALL SIZES

**DON'T
DROP SCREWS!**

USE AN AUTOMATIC...

Magic-Tip

SCREW HOLDING
SCREWDRIVER

FREE ILLUSTRATED CATALOG
HUNTER TOOLS • 9851 ALBURTIS
SANTA FE SPRINGS, CALIF

ALL NEW!

1960 Edition of Constantine's WOODWORKING CATALOG & MANUAL



FREE — Year's subscription to "Chips & Chats" ... brings news of exciting woodworking ideas and latest offerings ... Free with Catalog!

Get the biggest Constantine Catalog & Manual—2000 items! World's largest source since 1812 for rare imported and domestic woods in veneers, lumber, plywoods, bandings, inlays, mouldings, carvings...hard-to-find hardware, new solid brass hardware, wood finishing and upholstery supplies, patterns, tools, woodworking materials—at bargain prices! Also exclusive Inlaid-Wood-Picture Kits... Identification Chart of 60 rare woods in color...inspiring projects, plans, etc. For all-new 1960 Catalog & Manual, send 25¢ (refunded on first order). Write today!

ALBERT CONSTANTINE AND SON INC.

2050 Eastchester Rd., Dept. P-6
New York 61, N. Y.

You can make
180 amp. "HUSTLER"

BIG MONEY

with these LOW COST WELDERS

"POWER-WELD" ac power
plus dc weld

For a surprisingly low investment you can start a well paying business, doing repairs, construction, metal fabrication, etc. These versatile, low cost Hobart welders are easy to use. Built-in features usually found on larger, more expensive models assure professional results, long life.

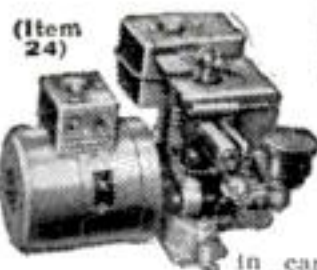
The 180 amp. "HUSTLER" is a complete welding package—including accessories. It welds, cuts, burns holes, hardsurfaces, and heats metal for bending and forming. Meets REA requirements.

The 200 amp. POWER/WELD furnishes DC current for welding—and simultane-

ously supplies 110/220 v. power for running lights, tools, motors, pumps, sprays, etc. Can also be used as an emergency power source to run brooders, milking machines, etc. Write today for complete details.....



HOBART BROTHERS CO., BOX P-109, TROY, OHIO, Phone FE.2-1223



(Item 24)

700 Watt Light Plant PUSH BUTTON START

115 v. 60 cyc. AC Powered by a rugged 2.2 HP, easy starting Briggs engine. No wiring necessary; just plug in and operate. Plenty of current for any oil burner, freezer, brooder, emergency lights, etc. which require up to 700 watts. Ideal for television and radios. Complete with voltmeter and built-in winding to charge 6 v. auto batteries. (Item 24) Wt. 7.5 lbs. Easily fits in car trunk. Be prepared if storm knocks out power lines. Reg. \$275....

\$143.50

1200 Watt Plant (Item 45) same as Item 24 but larger generator and engine with 50% greater output..... **\$199.50**

We make all sizes up to 25,000 watts



with mounting flange (Item 38)

HEAVY DUTY D-C ARC WELDER

Use as portable or shop welder. Up to 300 amps. Senior model. Made for years of trouble-free, continuous service. Will handle light or heavy jobs. Easily welds up to 3/4" plate using 1/4" rods. Built-in air cooling system. Arc is easy to strike and hold, because of specially designed arc stabilizer. Hi-lo switch and dial control gives wide range of welding heats. Run welder at 2600 rpm. with tractor, jeep or 15 hp. gas engine, or 7 hp. and triple V belt or flat pulley. You can pay more, but you can't buy a better welder. Wt. 110 lbs. \$400.00 value.....

\$119.50

WELDING KIT Two 10 ft. leads, welding helmet, electrode holder, ground clamp. Sold only with welder at..... **\$10.50**

HEATING AND VENTILATING FAN

(Item 10) Easily installed in furnace pipes. Forces even heat to all rooms. Over range removes kitchen smoke and odors. Powerful, continuous duty motor. 110-120 v. AC. Mount in wall or ceiling to ventilate any area. Quiet, super-efficient fan moves huge volume of air. (400 to 600 CFM).

8" Pipe, wt. 5 lb. **\$6.85**
9" Pipe, wt. 6 lb. **\$7.85**
10" Pipe, wt. 7 lb. **\$8.85**
12" Pipe, wt. 8 lb. **\$9.85**

HEAVY DUTY FAN. Semi-enclosed motor, suitable for spray booths, restaurant exhausts, poultry houses, etc. **\$11.95**

10" Fan, wt. 8 lbs. (Item 10E) **\$12.95**

12" Fan, wt. 10 lbs. (Item 10D) **\$14.95**

HIGH SPEED BARN FAN similar to above, but larger, high speed motor moves huge volume of air. **\$17.95**

Heats instantly anything from a cup of water to a washtub full. Heats much faster than any stove. Terrific for coffee, tea, soup, etc.—great too for laundry, dishes and baths. Made of unbreakable shock proof "Nyalite." Simple and cheap to operate—just plug it in. 1200 watts, 115 v. A.C. Money back guarantee, Item 856. Shipped pre-paid, only.....

\$3.95



FAUCET WATER HEATER

Instant hot water for just pennies—You just slip MASTER MECHANIC'S new Faucet Water Heater over any faucet—plug it in a wall outlet, and you've got steaming hot water instantly for dishes, shaving, washing baby's bottle, etc. Simple and safe—operates on ordinary 110 v. house current—costs only 2 1/2 cents per hour for hot water. Ideal for homes, shops, cabins, trailers, etc. Easily regulated from lukewarm to full hot. Fully guaranteed. (Item 408) Wt. 2 lbs. **\$4.95**

Factory price.....



Send 10c for 100 page Catalog—FREE with order. Prices f.o.b. factory—Send check or M.O.

MASTER MECHANIC MFG. CO., Dept. B109 Burlington, Wis.



DRAINS cellars, cisterns, wash tubs; IRRIGATES - CIRCULATES - SPRAYS

1,001 uses. Stainless shaft. Won't rust or clog! Uses 1/6 HP motor or larger... 3/4 HP for up to 3000 GPH; 450 GPH 80' high; or 1800 GPH from 25' well. 1" inlet; 3/4" outlet. Coupling included free. **Heavy Duty Ball-Bearing Pump.** Up to 7,500 GPH. 1 1/2" inlet; 1" outlet. **\$12.95**

Postpaid if cash with order. Also other sizes, types. **MONEY BACK GUARANTEE.**

LABAWCO PUMPS, Belle Mead 3A, N. J.

Lowest Price WATER SYSTEM Completely Automatic! \$49.95 less motor
With 1/2 HP motor, \$69.95
Bronze Gear Pump 275 GPH. 20-40 lbs. 3/4" fittings. **Free Circular**



CLOGGED SEWERS?

CLEANED INSTANTLY BY IMPACT SAVES PLUMBING BILLS—TIME—EFFORT

FREE BOOK

TELLS HOW TO CLEAN ALL DRAINS

Anyone can trigger this new Plumbers Flushing Gun shooting air pressure on a solid shaft of water cleaning stubborn stoppages up to 200 ft. Toilets, Bathtubs, Sinks, Urinals, House-to-Street Sewers clogged with Grease, Rags, & Roots melt away when struck by hammer-like blow. Worth many times the Cost in Plumbing Bills. Tear Ad out now, write Address beside it for **FREE BOOKLET**, no obligation. No Agent will call; or phone Kildare 5-1702. **MILLER SEWER ROD, DEPT. PS-10, 4642 N. Central Ave., Chicago 30, Ill.**

Flying the Atlantic by Jet

that, at 32.5 west, due to the headwinds.

The airplane now made up that five minutes. It was exactly on time. There had been a slight drop in the wind velocities used for the "prog."

By the time Capt. Dugan started his glide for Gander, more than 150 miles out from the Newfoundland coast, he had picked up several minutes.

As he approached the lip of the runway, the airspeed indicator was crossing the 137-knot mark, unwinding.

He touched down. When the dual nose wheels had been eased to the pavement, Warren flipped a switch to enfold the tailpipes in "clamshells," and reverse thrust. Dugan inched the throttles forward. The airplane decelerated. He retarded his throttles and touched the brakes.

Flight 103 was across the Atlantic. The automatic flight recorder in the front wheel well, known on the flight deck as the Sputnik, would show a Greenwich time of 17:37, five minutes ahead of forecast. Capt. Dugan had 23,135 pounds of fuel left in his tanks. The estimated burn-off to Gander had been 64,500. He had used 63,765. While the jet was refueled, he walked to Dispatch for his flight plan to New York.

Landing. Two hours and 52 minutes later the control tower at Idlewild, New York International Airport, radioed, "Jet Clipper one zero three, you are cleared to land on runway one three right."

Capt. Art Dugan touched down, decelerated and turned off on a taxiway. He parked his jet on the apron in front of the gold-and-chrome International Arrivals Building. Attendants rolled stairs to the front and rear of the plane. The passengers streamed off, clutching trinkets bought in Oxford Street and the Via Veneto.

It was 4:19 p.m. in New York. Total time for the flight, including the 25-minute stop in Gander, had been 7 hours, 42 minutes. Discounting the stop, the average speed had been 472 miles an hour.

Mary Chugkowski consulted her watch. She would have plenty of time to get home and change before her date.

A propeller airplane that had taken off at London immediately behind the jet was still out over the Atlantic, six hours short of New York.

Works in seconds!



Loosens Rusted Bolts
nuts, screws, "frozen" parts!

LIQUID WRENCH®

SUPER-PENETRANT

The super-penetrating rust solvent that quickly loosens rust and corrosion.

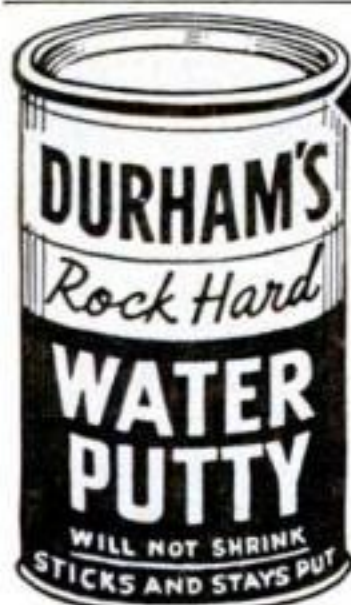
AT ALL HARDWARE AND AUTO STORES

RADIATOR SPECIALTY COMPANY
CHARLOTTE, NORTH CAROLINA

"ALWAYS USE ME TOO!"

LIQUID WRENCH SUPER OIL

The very finest lubricating oil available for machinery, watches, sporting goods, sewing machines.



The Modern PLASTIC for lasting Home Repairs

PERMANENTLY mends cracks or holes in wood, tile, stone or plaster. Sticks and stays put—Does not chip, shrink or fall out. Easy to use. Economical. Mold it, chisel it, polish or paint it. The big 4-lb. can is obtainable from your lumber, paint or hardware dealer at \$1.40; or will be shipped direct postpaid (in U. S.) for \$1.75. Complete satisfaction guaranteed or your money refunded. Order now.

DONALD DURHAM CO.

Box 804-U Des Moines, Iowa

ADJUSTABLE MITER BOX & CORNER CLAMP

2 TOOLS
IN ONE



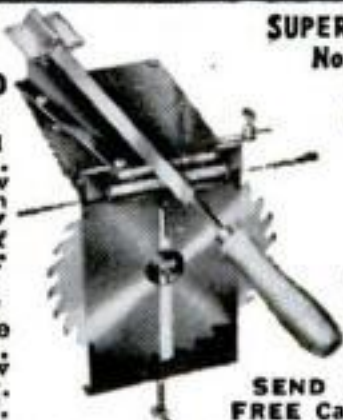
No. 44 COMBINATION MITER BOX AND CORNER CLAMP

Holds the wood and holds your saw. Uses any handsaw for accurate cuts from 0° to 180°. Full 3" capacity. Sides of joints exposed for nailing, gluing.

\$2.75 ppd.

No. 33 Works the same as No. 44, but without saw guide attachment.

\$1.75 ppd.



SUPER FILER No. 11

For both hand and circular saws. Steel rollers give all teeth correct height, pitch and bevel.

\$9.95 ppd.

SEND FOR
FREE Catalog.

A. D. McBurney, 5908 Hollywood Blvd., Hollywood 28, Calif. Dept.: 10-95

NEW BELSAW MULTI-DUTY POWER TOOL

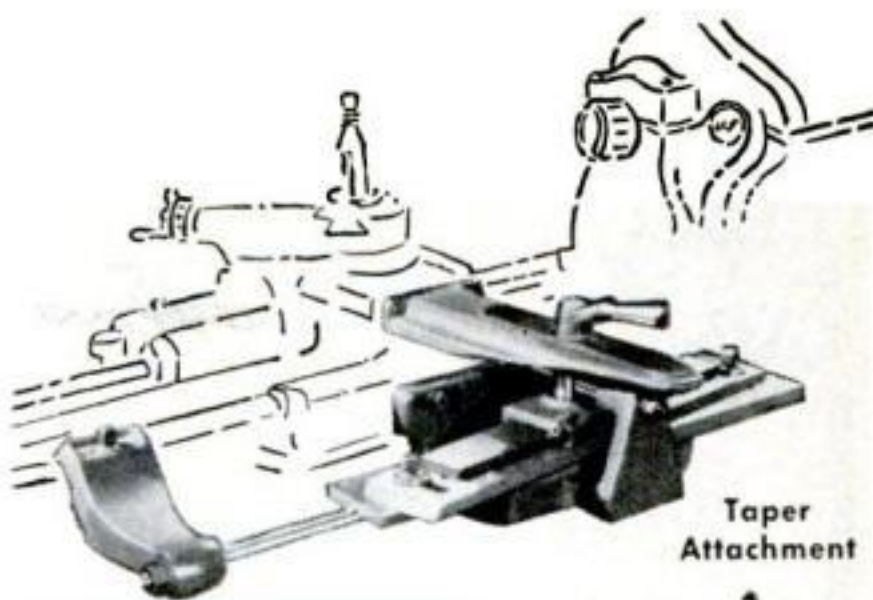
SAWS—PLANES—MOLDS



Now you can use this ONE power-feed shop to turn rough lumber into moldings, trim, flooring, furniture... ALL popular patterns. RIP... PLANE... MOLD... separately or all at once with a one HP motor. Use 3 to 5 HP for high speed output. Fully Safe-guarded. Low Cost... You can own this power tool for only \$30.00 down payment.

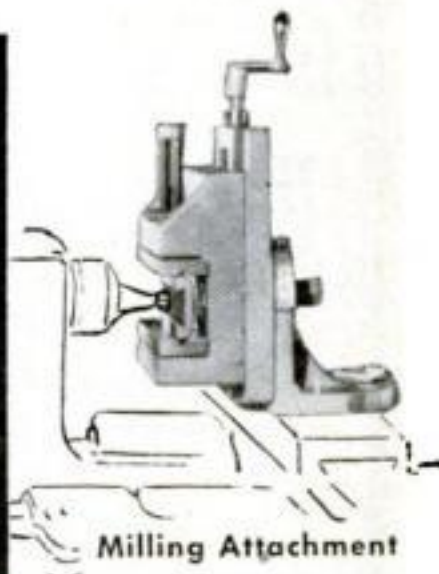
Write TODAY for Free Catalog

BELSAW POWER TOOLS, 920 Field Bldg., Kansas City 11, Mo.



Taper
Attachment

Get More Work out of Your Lathe



Milling Attachment



Steady
Rest



External Grinder



Live Centers



Handlever Collet Attachment

Use South Bend Attachments to...

Cut Machining Time • Simplify Difficult Jobs
Speed up Tooling • Handle More Types
of Jobs • Perform Non-lathe Operations

Write for complete information
on the largest selection of lathe attachments,
tools and accessories made.

SOUTH BEND LATHE

South Bend Lathe, Inc., South Bend 22, Indiana

Builders of Lathes, Milling Machines,
Shapers, Drill Presses, Pedestal Grinders

Up to 24 months to pay





What on earth Is a Grady Wedge?



A Red Devil Grady Wedge driven into the end of axe or hammer handle keeps the head on tight, safe. Your hardware dealer has 8 different sizes, from 4¢ to 14¢ each—or a handy bag of 5 most-useful sizes for 28¢. Cheap life insurance!



Nothing Sharper Than Razor Blades for scraping stickers off windshields, paint off windows or what have you? But why shed blood when 29¢ buys you this Red Devil "Red Hed" that's easy to grasp, retracts blade with a thumbflick. Spare blades, 5 for 15¢, colored red to warn when business edge is exposed.



Scraping Is Easier Than You Thought when you use the right Red Devil Scraper for the job. Professionals know this, so we make 18 different sizes, shapes, and kinds to keep 'em happy. The best stores carry all, priced from 40¢ to \$4.95, and will tell you which to use.



Linoleum Cuts Like Butter with a Red Devil Linoleum Knife. A whiz for cardboard, opening boxes, cutting roofing material. Worth 60¢ to have one "just in case", but if you're choosy, Red Devil dealers have 7 different styles for which you can pay as much as \$1.15.

It's always best to buy where Red Devil Tools are sold, for wider choice, highest quality, and correct "how-to" advice.

Free booklet,
"How To Prepare Surfaces For Finishing."
Address Dep't. D-10



Red Devil Tools.

Union, N. J., U. S. A.

World's largest manufacturer of painters' and glaziers' tools.



119 JIG SAW PATTERNS

FULL-SIZE . . . trace on wood and saw out. Clever, ORIGINAL designs, things you can make to SELL. Wall shelves, lawn signs, planters, book ends, others. **\$1** postpaid

BURGESS VIBROCRRAFTERS, INC.

Rush \$1 today. DEPT. C-123, Grayslake, Illinois



FOR 1960

More aluminum, lighter weight, better performance, beautiful styling. Still World's Lowest Priced Car. Drive it for 75¢ a week. Rider Agents Wanted. If no dealer near you send 25¢ for 32 page picture book, full details, dealer price, or send \$1 (refunded first order) for this and Service Manual plus Repair Manual and 15 5x7 photos of car and factory.

MIDGET MOTORS CORPORATION, Athens 2, Ohio

MAGNETS

PERMANENT ALNICO

FOR HOBBYISTS, INVENTORS, SCHOOLS, FISHERMAN & INDUSTRY

Prompt delivery. If not satisfied in ten days money back.

S-2 Gov. Surp. Radar Retrievers pull 250 lbs. on steel block	\$14.00
S-21 Retriever pull 125 lbs. on centre steel block	9.50
S-23 Retriever pull 60 lbs. on centre steel block	6.50
S-26 Retriever pull 50 lbs. on centre steel block	4.50
S-29 Midget smallest retriever ever pull 12 lbs.	4.50
S-32 10 Hot Pad Magnets & Pick up Tool	1.00
S-33 Assortment of 12 magnets	1.50
S-36 Pencil Type magnet 2 for \$1.00	6 for 2.50
S-37 20 assorted including pick up tool	
& 5 lbs. pull horse shoe	3.00
S-38 Horse Shoe Magnets pull 4 lbs.	2 for 1.00
S-40 Rod Magnets 3/16" x 1" 5 for \$1.00; Special 10 for	1.50

Send M.O. or check. We pay postage. No C.O.D.

HOLLYWOOD HOUSE OF MAGNETS, INC.
6912 Hollywood Blvd., Hollywood 28, Calif.

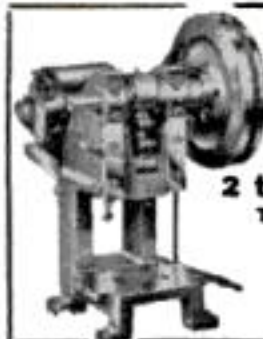
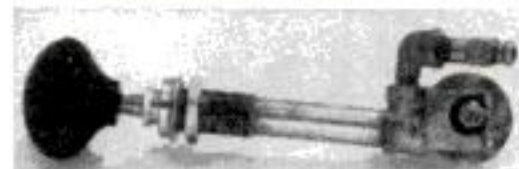
PRIMER PUMP \$2

Original Government Cost \$8.00

Precision made under rigid U.S. Government specifications. Terrific for pumping gas, oil or air for cars, boats and especially hot rods. Only \$2 postage prepaid. Complete satisfaction guaranteed. Send orders to:

BURK'S SURPLUS

1144 Fairview North Seattle 9, Washington



Heavy Duty Type ALLEN PUNCH PRESSES

Model B-2
2 ton - \$97.50
Tilting model
\$127.50
fob-less motor

Hundreds of Different Model Combinations 1 to 12 ton capacities Moderate in price Fully guaranteed See your supply dealer or write for Free catalog giving complete information and prices on our Heavy Duty Punch Presses.

ALVA ALLEN INDUSTRIES, Dept. PS, Clinton, Mo.

SAVE HUNDREDS OF DOLLARS—DO YOUR OWN CONCRETE CONSTRUCTION



- Mixes while transporting
- Dumps hydraulically
- Attaches in minutes
- Unconditional guarantee

For FREE folder, write:

UNIVERSAL PULLEYS CO., INC.
371 N. Mosley • Wichita, Kansas

WELD IN A JIFFY! IT'S DYNAMIC \$3850 F.O.B.



Now any one can weld, cut, braze or solder almost any metal quick, safe and easy with this professional type welder. Make repairs in home or shop and farm; repair auto bodies and fenders, build wrought iron furniture, railings, fences, etc. — 1001 metal items. No previous experience necessary. Designed to operate on any properly wired 110 V. A.C. line. Order today! Literature on larger industrial equipment on request.

DYNAMIC WELDER COMPANY, 1808 S. Federal St., Dept. D3-K, Chicago 16, Ill.

EASY PAY PLAN

Low down payment. Pay as you USE. Money back guarantee. Act now!

SEND ONLY \$6.00

CHECK, CASH or M.O. PAY POSTMAN BALANCE PLUS CHARGES. 1 YEAR GUARANTEE. 10 DAY MONEY BACK TRIAL

This One



NPFQ-6XA-6Q6B

IS THIS OFFER TOO GOOD TO BE TRUE?

**We Pay
All Freight
For Your
FREE
Home Trial!**

GRINDER

SANDER

30" LATHE

8" TILTING
TABLE SAW

HORIZONTAL
DRILL PRESS

It's true. We pay all freight for your FREE home trial. Factory to you only \$79.95. Handles big jobs. 100% ball bearing. Think of the fun you'll have and the money you'll save with your own workshop. Only \$10 down delivers \$79.95 Supershop prepaid to your home. Write for full details, color brochures, FREE home trial plan. Mail postcard now.

**Power Tools Division
UNITED INDUSTRIES, Inc.**
224 Yates Ave., Beloit, Wisc.



VERT. DRILL PRESS

TOOLS WHOLESALE

Start your own business, sell tools to your friends and neighbors, or buy tools for your own use and **SAVE MONEY \$\$\$**

**\$100
PUTS YOU IN
BUSINESS**

A MILLION DOLLAR INVENTORY AT YOUR FINGERTIPS. NO STOCK TO CARRY. ORDER AS YOU NEED IT.

BUY AT WHOLESALE PRICES. Extra \$25.00 profit on your accumulated purchases. \$1.00 refund on first purchase or refunded if you are not 100% satisfied.

THOUSANDS!! of Nationally Advertised items of Hand Tools, Power Tools, Machinist Tools, Tool Chests, Paint Sprayers, Light Fixtures, Appliances, Guns, Gifts, Toys and other items too many to list.

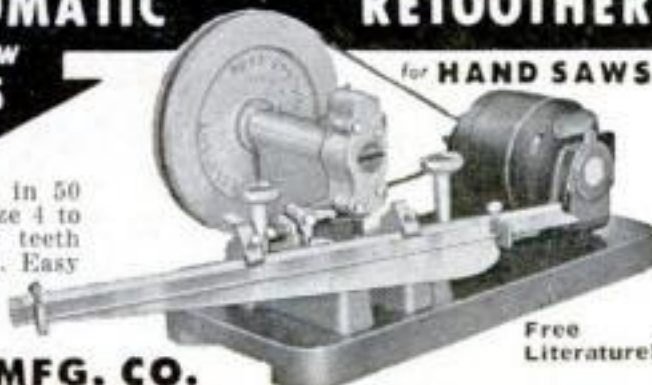
WE SHIP COAST TO COAST Wholesale Discounts up to 55% OFF

SILVO HARDWARE CO. Dept. PS-10 107 Walnut St., Phila. 6, Pa.

AUTOMATIC MAKES NEW PROFITS

RETOOTHER for HAND SAWS

Cuts new teeth in 50 seconds—any size 4 to 16 points. Old teeth fall off as chips. Easy to operate. A perfect job.



Free Literature!

BURR MFG. CO.

8943-D VENICE BLVD.

LOS ANGELES 34, CALIFORNIA

GUNK-it-yourself!

Gunk® G.P. removes grease from engines or concrete floors; cleans paint brushes, power mowers, or machinery completely, economically, safely. It's ready-to-use, rinses off with water, won't clog drains. Quart size with handy "Squirt Spout" top speeds application. Insist on the best degreaser—the original "GUNK" at better automotive supply and hardware retailers everywhere.

® REG. TRADE MARK.



GUNK CHICAGO CO., River Forest, Illinois
serving the Midwest and Southwest
RADIATOR SPECIALTY CO., Charlotte, No. Carolina
serving the East, Southeast and far West

SAVE 50% ON PHILIPPINE MAHOGANY

PLAIN

OR
RANDOM
GROOVED

Take advantage of our Boatload Purchases. Ideal for paneling Dens, Office, Hotel, etc. This select Luan Philippine Mahogany meets the most rigid specifications. It is a rich golden color—rotary cut for beauty of grain. Both sides sanded and ready to use. Bonded with the finest resins. Two types to choose from: 1. Plain surface; 2. 'V' grooved in random widths.

**FREE SAMPLE
ON REQUEST**

1/8" thick PLYWOOD
(Minimum order 8 sheets)
SIZE SURFACE Price each
3' x 6' Plain \$1.89
3' x 7' Plain 2.19

AS LOW AS 18¢ EA.
6 mm (3/16") thick PLYWOOD
(Minimum order 4 sheets)
SIZE SURFACE Price each
4' x 8' Plain \$4.39
4' x 8' 'V' grooved 4.59

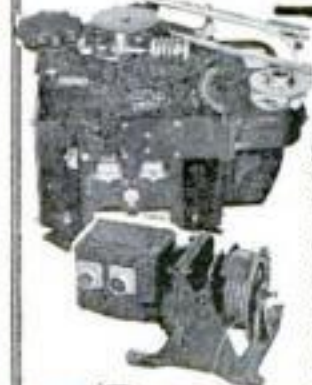


FIBERGLASS PANELING—Structural quality. Flat or corrugated. In greatest variety of colors. 90¢ sq. ft. value... **NOW ONLY... 39¢.**



FAMOUS NORDEN M-9 BOMB SIGHT

Here it is! The super-secret Norden Bomb sight of WW2 fame. Brand new and in working condition. Loaded with precision parts, gears, optical systems, electrical gyro, etc. Ideal for use in aerial fish planting, glider 'bombing' contests or to control large earthmoving equipment. **ONLY 3750**
Cost Gov't approximately \$6000.00.



SPECIAL BOAT AUTO PILOT

Now at a fraction of the cost of others priced up to \$595.00. Consists of a precision instrument with a gyro and servo built-in (mfg. by Minneapolis-Honeywell)—this unit controls a DC reversible motor with a magnetic clutch. Stabilizer is built to maintain a set course within 1/2° of variance. Dodging or changing course, pitching or rolling doesn't affect operation of the unit. Operates on 12 or 24 volt AC. Suitable for boats of any size—has been used by Coast Guard Auxiliary boats. Can operate remotely with hand buttons. **Complete KIT NOW ONLY 4495**



**AIR FORCE
100% NYLON
COVERALL
ONLY 488**

Genuine Nylon Air Force coveralls. Has six pockets with zipper closure. An adjustable waist. Full zipper on front and ankles. Sizes: 32-40 small-long or medium-short. Color: Air force Blue. Cost Gov't approx. \$15.

NAVY WADERS

Waist-deep protection for wading in mud, silt, water, etc. Made to too Gov't specifications from a rubberized hvy. duty canvas. Front may be overall or coverall type. The latter comes with suspenders. All seams are vulcanized. Has built-in boots with hvy. duty soles. Sizes: Small, Medium or Large. Specify size and type.

**WADE SUIT (Coverall type) 1295
WADE SUIT (Overall type) - 995**



**NEW
IMPORT
SAVE**

25x30mm TELESCOPE & TRIPOD

Use as a Telescope, Spot Hits on a Target, etc. Body is of chrome plated brass and aluminum. Has 25 power magnification with 30mm objective lens. All lenses are precision ground and polished. Field of view at 1000 yards is 62 feet. At a \$20.00 value for **ONLY 695**

PIGSKIN CARRYING CASE for above \$2.00 extra



Handle 5-5/8"

**NEW 12PC
SPORT
KNIFE
344**

Eliminates 12 ITEMS from your pack. Ideal for Camper, Boy Scout, Hunter, Fisherman, Hiker, etc. Includes a knife, fork, spoon, drawknife, bone-saw, fish scaler, scissors, can & bottle opener, corkscrew, awl-punch, screwdriver and file. ALL this plus a leather belt holster.

NEW NAVY COMMANDO KNIFE

Has 6-1/2" hollow ground blade—double edged 3-1/2" at tip. Overall length 11". Worth \$6.95. **NOW 2.98**
Leather Belt Sheath for above \$1.00



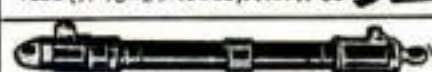
64 PG. CATALOG

Packed with hundreds of Import Bargains for Home, Patio, Camping, Office, etc. Includes new Hydraulic supplement. Send 25¢ to cover cost of handling and mailing.



HYDRAULIC CYL.

New 1500 PSI Dbl. Action Cylinder. Ideal for clutch or throttle control when used as a master & slave. Has 5/8" bore, 4-1/8" stroke, 7/16" shaft, 9-5/8" closed length. Ports are 1/4" tube (7/16-20 thread). No. H-60 **375**



1500 PSI, long stroke cylinder—Has a Stroke of 15-5/8", Bore 1-3/8", Shaft 1", Length 22". No. H-14
Cost Gov't approx. \$120.00
Palley Catalog Price \$11.75 **795**

GOV'T SURPLUS BLOWER/MOTOR

Operates on 24 volts DC at 1.35 amps. Direct drive fan blade turns 4700 RPM. Fan has central intake and two opposed exhaust ports. Fan housing is 8" in diameter. Motor is 3"x3" **388**

Send check or M.O. 1/2 deposit with C.O.D. All items shipped postage or freight collect.

palley/s

2263 East VERNON AVENUE, DEPT. PS-109
LOS ANGELES 58, CALIFORNIA

Why I Believe in Sea Monsters

[Continued from page 103]

The indestructible what-is-it. And here is the most vivid and recent account of all: Five minutes before noon on Dec. 30, 1947, a clear, sunny day, the Grace Liner Santa Clara was steaming southward through calm seas 118 miles east of Cape Lookout, N. C. What happened at that moment was described later to the Associated Press by the ship's captain. This is a part of his story:

"Suddenly, John Axelson (the third mate) saw a snakelike head rear out of the sea about 30 feet off the starboard bow of the vessel. His exclamation of amazement directed the attention of the other two mates to the sea monster, and the three watched it unbelievably as it came abeam of the bridge where they stood, and was left astern.

"The creature's head appeared to be about 2½ feet across, two feet thick and five feet long. The cylindrically shaped body was about three feet thick and the neck about 1½ feet in diameter.

"As the monster came abeam of the bridge, it was observed that the water around the monster, over an area of 30 or 40 feet square, was stained red. The visible part of the body was about 35 feet long. It was assumed that the color of the water was due to the creature's blood and that the stem of the ship had cut the monster in two.

"From the time the monster was first sighted until it disappeared in the distance astern, it was thrashing about as though in agony. The monster's skin was dark brown, slick and smooth. There were no fins, hair, or protuberances on the head, neck or visible parts of the body."

Brazil is on the far side of the South Atlantic from where we found our giant leptocephalus, and North Carolina is even farther away from there. But it would not be strange if an adult of that mysterious species had managed to swim across an ocean. After all, we marine biologists know that the little fresh-water eels that Danes and other Northern Europeans eat with such pleasure are spawned in the ocean 3,000 miles southwest of where they are caught.

Where to look for giant eels. There are small sea eels, about the size of the fresh-water ones, that breed in the sunlit layers of the ocean in sub-tropical and tropical regions but head for the cold depths as soon as they are grown. We have found them as far as two miles below the surface, living where the temper-

ature is almost constantly around 38 degrees above zero.

I believe that giant eels, grown from larvae such as the one we found off southwest Africa, may very well live in those dark, frigid regions. Since they would spawn around 200 feet below the surface, and die afterwards, as all eels do, their great bodies would normally sink to the ocean bottom without even being seen. But it is conceivable that occasionally one of them, in a bewildered, dying condition, might struggle to the surface after spawning. As it rose, its need for more oxygen would far exceed its capacity to absorb it, and it would find surface temperatures intolerably hot. It would literally suffocate as it reached the air.

Monsters must eat. Where would I expect to find sea serpents? Well, giants must have great quantities of food, of course.

This matter of food, by the way, should enable us to dispose, for all time, of Scotland's notorious Loch Ness monster. Loch Ness, though very deep, is still just a narrow little lake. Where, in that relatively cramped place, would the monster that is supposed to dwell there find enough fish to keep it alive?

The richest feeding grounds in all the seas are off the west coasts of Africa and South America. Here the waters for a thousand feet down are laden with nutrient salts—what farmers would call fertilizer—and teeming with fish. Here is where fishermen catch their biggest game.

Now, I would like to encourage those gentlemen to lengthen their lines and lower them about 100 miles offshore, where the ocean bottom dips steeply downward from around 600 to 6,000 feet. They could bait their big hooks with frozen herring or squid, and they might very well haul up from the depths a giant sea serpent. By the time it reached the surface, it would be in no condition to put up a fight. But they would have a thrilling catch just the same, and make an important contribution to science.

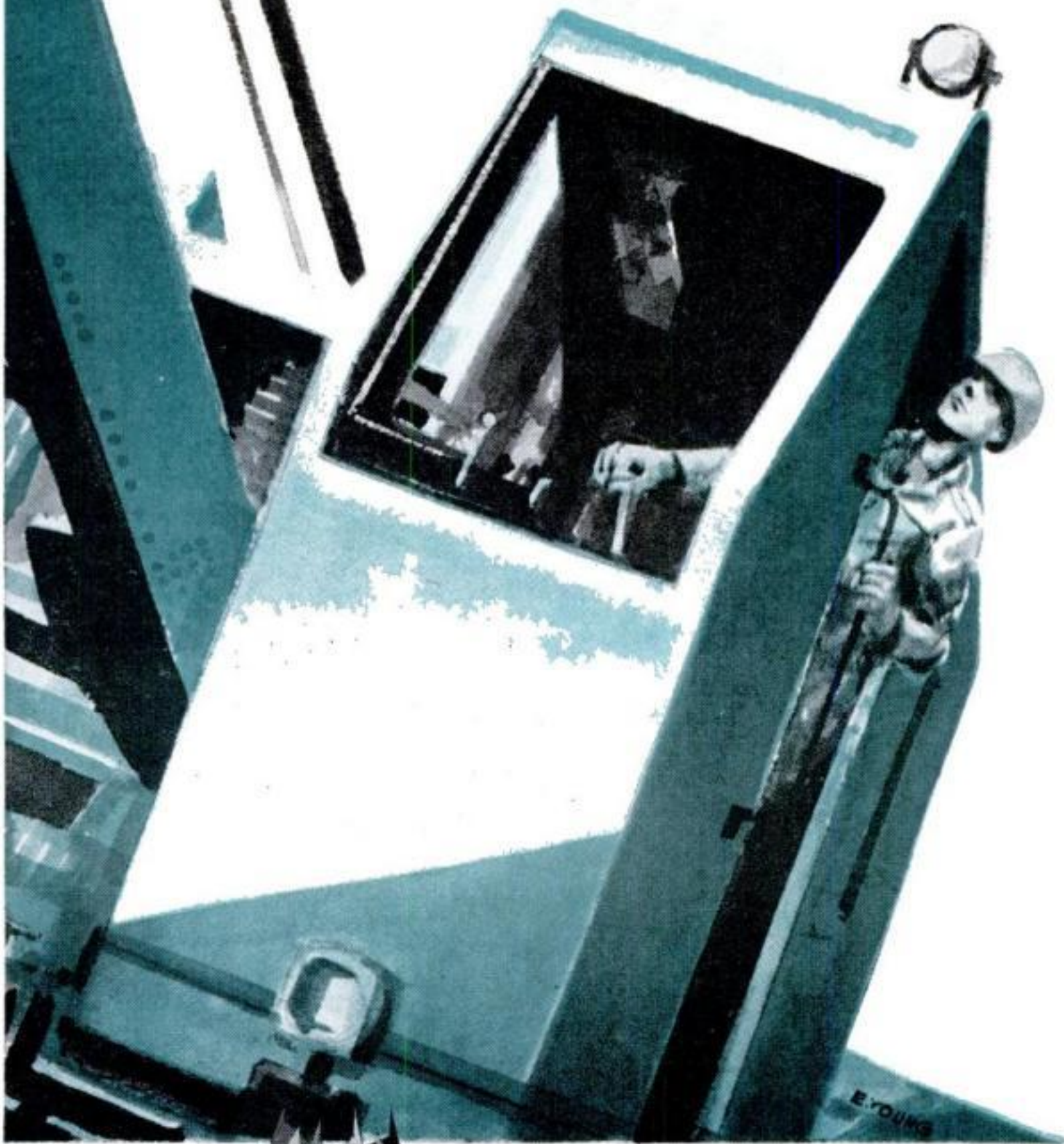
[Just after this was written, details were announced of another possible way to catch a sea serpent, with the novel trap described in an item accompanying the earlier part of this article.—The Editor.]

Pick the training you want!
choose-it-yourself... before enlistment

The Army's new "Choose-it-Yourself" System lets you do the choosing! Here's how it works: **1. choose** . . . before enlistment. Choose your training from fields like Construction Equipment Operation, Electronics, Missiles, Machine Accounting, Radar & TV Repair—and many more. **2. qualify** . . . before enlistment. Take aptitude and physical exams to qualify for your chosen training. **3. know** . . . before enlistment.

If you qualify, you know you'll get the training you like. Your choice is written right into your future Army record—guaranteed before you enlist.

no obligation! Choose, qualify and know—without the slightest obligation to enlist. This week, ask your Army recruiter to show you his complete list of available training fields.



CHOOSE IT  YOURSELF VOCATIONAL TRAINING SYSTEM
US ARMY

BIG REWARDS

for Industry's Most-Wanted Men



Chemical Lab
Technician



Elec. Engineering
Technician



Radio-TV
Technician



Aeronautical
Technician



General Electronics
Technician



Industrial
Electronics
Technician

With the right training, you can qualify for big-pay jobs in these vital industries. Start yourself on an exciting, rewarding career and at the same time help fill a desperate need. I. C. S. can

show you how! I. C. S. spare-time training is recognized and used by leading companies throughout the U.S. and overseas. Send today for full details including three free books:

1. "How to Succeed"
36-page guide
to advancement.

2. Opportunity
Handbook in
field of your
choice.

3. Sample lesson
(Math) to
demonstrate
I. C. S. method.

For Real Job Security—Get an I. C. S. Diploma! I. C. S., Scranton 15, Penna.

Accredited Member,
National Home Study Council

INTERNATIONAL CORRESPONDENCE SCHOOLS



BOX 49641K, SCRANTON 15, PENNA.

(Partial list of 258 courses)

Without cost or obligation, send me "HOW to SUCCEED" and the opportunity booklet about the field BEFORE which I have marked X (plus sample lesson):

ARCHITECTURE and BUILDING CONSTRUCTION

- ☐ Air Conditioning
- ☐ Architecture
- ☐ Arch. Drawing and Designing
- ☐ Building Contractor
- ☐ Building Estimator
- ☐ Carpenter Builder
- ☐ Carpentry and Millwork
- ☐ Carpenter Foreman
- ☐ Heating
- ☐ Painting Contractor
- ☐ Plumbing
- ☐ Reading Arch. Blueprints

ART

- ☐ Commercial Art
- ☐ Magazine Illus.
- ☐ Show Card and Sign Lettering
- ☐ Sketching and Painting

AUTOMOTIVE

- ☐ Automobile
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Auto Engine Tuneup
- ☐ Auto Technician

AVIATION

- ☐ Aero-Engineering Technology
- ☐ Aircraft & Engine Mechanic

BUSINESS

- ☐ Accounting
- ☐ Advertising
- ☐ Business Administration
- ☐ Business Management
- ☐ Cost Accounting
- ☐ Creative Salesmanship
- ☐ Managing a Small Business
- ☐ Professional Secretary
- ☐ Public Accounting
- ☐ Purchasing Agent
- ☐ Salesmanship
- ☐ Salesmanship and Management
- ☐ Traffic Management

CHEMICAL

- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ Elements of Nuclear Energy
- ☐ General Chemistry
- ☐ Natural Gas Prod. and Trans.
- ☐ Petroleum Prod. and Engr.
- ☐ Professional Engineer (Chem)
- ☐ Pulp and Paper Making

CIVIL ENGINEERING

- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Professional Engineer (Civil)
- ☐ Reading Struc. Blueprints
- ☐ Sanitary Engineer
- ☐ Structural Engineering
- ☐ Surveying and Mapping

DRAFTING

- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Drafting & Machine Design
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Sheet Metal Drafting
- ☐ Structural Drafting

ELECTRICAL

- ☐ Electrical Engineering
- ☐ Elec. Engr. Technician
- ☐ Elec. Light and Power
- ☐ Practical Electrician
- ☐ Practical Lineman
- ☐ Professional Engineer (Elec)

HIGH SCHOOL

- ☐ High School Diploma

- ☐ Good English
- ☐ High School Mathematics
- ☐ High School Science
- ☐ Short Story Writing

LEADERSHIP

- ☐ Industrial Foremanship
- ☐ Industrial Supervision
- ☐ Personnel-Labor Relations
- ☐ Supervision

MECHANICAL and SHOP

- ☐ Diesel Engines
- ☐ Gas-Elec. Welding
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Metallurgy
- ☐ Industrial Safety
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Professional Engineer (Mech)
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration and Air Conditioning
- ☐ Tool Design
- ☐ Tool Making

RADIO, TELEVISION

- ☐ General Electronics Tech.

- ☐ Industrial Electronics
- ☐ Practical Radio-TV Eng'r'g
- ☐ Practical Telephony
- ☐ Radio-TV Servicing

RAILROAD

- ☐ Car Inspector and Air Brake
- ☐ Diesel Electrician
- ☐ Diesel Engr. and Fireman
- ☐ Diesel Locomotive

STEAM and DIESEL POWER

- ☐ Combustion Engineering
- ☐ Power Plant Engineer
- ☐ Stationary Diesel Engr.
- ☐ Stationary Fireman

TEXTILE

- ☐ Carding and Spinning
- ☐ Cotton Manufacture
- ☐ Cotton Warping and Weaving
- ☐ Loom Fixing Technician
- ☐ Textile Designing
- ☐ Textile Finishing & Dyeing
- ☐ Throwing
- ☐ Warping and Weaving
- ☐ Worsted Manufacturing

Name _____ Age _____ Home Address _____

City _____ Zone _____ State _____ Working Hours _____ A.M. to P.M. _____

Occupation _____ Canadian residents send coupon to International Correspondence Schools, Canadian, Ltd., Montreal, Canada. . . . Special low monthly tuition rates to members of the U. S. Armed Forces.